S
622.338
U8Lcbch
1989
V.2
Draft environmental impact statement for exploratory oil and gas wells near Badger Creek and Hall Creek

APPENDICES DRAFT

Environmental Impact Statement for Exploratory Oil and Gas Wells

STATE DOCUMENTS COLLECTION
OCT 29 1991
MONTANA STATE LIBRARY
1515 E. 6th AVE.
HELENA, MONTANA 59620

Proposed Oil and Gas Drilling near Badger Creek and Hall Creek

PLEASE RETURN

Bureau of Land Management
Lewistown District

Lewis and Clark National Forest
Rocky Mountain
Ranger District

MONTANA STATE LIBRARY
S 622.338 U8LCbch 1989 c.1 v.2
Draft environmental impact statement for
3 0864 00074467 5

TABLE OF CONTENTS OF APPENDICES

Appendix	APPENDICES	Page No.
A	**Lease Terms and Stipulations** 1. Chevron's Lease No. M25173 2. Fina's Lease No. M53323	A A-1 A-13
B	**Oil and Gas Project Information** 1. Chevron's Surface Use Plan 2. Chevron's Hydrogen Sulfide Contingency Plan 3. Fina's Surface Use Plan 4. Fina's Hydrogen Sulfide Contingency Plan	B B-1 B-18 B-35 B-47
C	**Lewis and Clark National Forest Plan Direction** 1. Forestwide Management Standards for Minerals 2. Management Area Prescriptions	C C-1 C-7
D	**Scoping Information** 1. Content Analysis on Combined Chevron/Fina APD's 2. Content Analysis on Scoping Period for Chevron APD 3. Content Analysis on Scoping Period for Fina APD	D D-1 D-10 D-48
E	**Badger Creek Exploration Unit Map**	E-1
F	**Biological Evaluation**	F-1
G	**Biological Opinion**	G-1
H	**Plant Species of Special Concern**	H-1
I	**Existing Visual Condition**	I-1
J	**Correspondence**	J-1
K	**Reclamation and Road Management**	K-1
L	**Technical Report and Reasonably Foreseeable Projections for Potential Development of Oil and Gas in the RM-1 Geographic Unit**	L-1
M	**Ethnographic/Ethnohistoric**	M-1
N	**Helicopter Supported Drilling Strategies**	N-1
O	**Onshore Oil and Gas Orders 1 and 2**	O-1

APPENDIX A

LEASE TERMS AND STIPULATIONS

- Chevron's Lease No. M-25173 Page A-1
- Fina's Lease No. M-53323 Page A-13

NOTE TO READER:

See Appendix L for further discussion of stipulations contained on the above leases.

Digitized by the Internet Archive
in 2016

https://archive.org/details/draftenvironmen1989lewi_0

Form 3120-3
Eleventh Edition
(September 1968)

Form approved
Budget Bureau No. 42-

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Office MONTANA

Serial No. M 25173

Rec'd 9/25/81

[illegible]

OFFER TO LEASE AND LEASE FOR OIL AND GAS

(Sec. 17 Noncompetitive Public Domain Lease)

The undersigned hereby offers to lease all or any of the lands described in item 2 that are available for lease, pursuant and subject to the terms and provisions of the Act of February 25, 1920 (41 Stat. 437, 30 U. S. C. sec. 181), as amended, hereinafter referred to as the Act and to all reasonable regulations of the Secretary of the Interior now or hereafter in force, when not inconsistent with any express and specific provisions herein, which are made a part hereof.

1. Mr. Mrs. Miss Chevron U.S.A. Inc. ~~Chevron Oil Company~~
(First Name, Middle Initial, Last Name)
P. O. Box 599
(Number and Street)
Denver, Colorado 80201
(City, State, ZIP Code)

[illegible]

REGIONAL FORESTER, MISSOULA, MT

2. Land requested: State Montana County Pondera T. 29N : R. 12W : P.M. Meridian

Unsurveyed as shown on Protraction Diagram No. 44, Montana
Section 33: All
Section 34: All
Section 35: All

Minerals & Geology
SEP 21 1981
App Examiner

Total Area 1920.00 Acres

3. Land included in lease: State County T. : R. : Meridian

This lease embraces the area and the land described in Item 2.

on plat
TRW

(*Offeror does not fill in this block*) Total Area Acres Rental retained $ 1920.00

4. Amount remitted: Filing fee $10, Rental $ 960.00, Total $ 970.00

5. Undersigned certifies as follows:
(*a*) Offeror is a citizen of the United States. Native born .... Naturalized .... Corporation or other legal entity (specify what kind): Offeror is a California Corporation whose qualifications to hold US Oil & Gas leases are on file with the BLM, Washington, D.C. under Ser. BLM 066100
(*b*) Offeror's interests, direct and indirect, do not exceed 200,000 acres in oil and gas options or 246,080 chargeable acres in options, offers to lease and leases in the same State, or 300,000 chargeable acres in leases, offers to lease and options in each leasing district in Alaska. (*c*) Offeror accepts as a part of this lease, to the extent applicable, the stipulations provided for in 43 CFR 3103.2. (*d*) Offeror is 21 years of age or over (or if a corporation or other legal entity, is duly qualified as shown by statements made or referred to herein). (*e*) Offeror has described all surveyed lands by legal subdivisions, all lands covered by protracted surveys by appropriate subdivisions thereof, or all unsurveyed lands not covered by protracted surveys by metes and bounds, and further states that there are no settlers on unsurveyed lands described herein.

6. Offeror ☒ is ☐ is not the sole party in interest in this offer and lease, if issued. (*If not the sole party in interest, statements should be filed as prescribed in Item 6 of the Special Instructions.*)

7. Offeror's signature to this offer shall also constitute offeror's signature to, and acceptance of, this lease and any amendment thereto that may cover any land described in this offer open to lease application at the time the offer was filed but omitted from this lease for any reason, or signature to, or acceptance of, any separate lease for such land. The offeror further agrees that (*a*) this offer cannot be withdrawn, either in whole or in part, unless the withdrawal is received by the land office before this lease, an amendment to this lease, or a separate lease, whichever covers the land described in the withdrawal, has been signed in behalf of the United States, and (*b*) this offer and lease shall apply only to lands not within a known geologic structure of a producing oil or gas field.

8. If this lease form does not contain all of the terms and conditions of the lease form in effect at the date of filing, the offeror further agrees to be bound by the terms and conditions contained in that form.

9. It is hereby certified that the statements made herein are complete and correct to the best of offeror's knowledge and belief and are made in good faith.

Offeror duly executed this instrument this 8th day of May, 19 73

(Offeror's signature)

Chevron Oil Company
(Offeror's signature)
By
Assistant (Signature of officer) Secretary

This lease for the lands described in Item 3 above is hereby issued, subject to the provisions of the offer and on the reverse side hereof.

THE UNITED STATES OF AMERICA

By /s/ CYNTHIA L. EMBRETSON
(Signing officer)
Chief, Minerals Adjudication Section
(Title)

SEP 10 1981
(Date)

Effective date of lease OCT 1 1981

THIS OFFER MAY BE REJECTED AND RETURNED TO THE OFFEROR AND WILL AFFORD THE OFFEROR NO PRIORITY IF IT IS NOT PROPERLY FILLED IN AND EXECUTED OR IF IT IS NOT ACCOMPANIED BY THE REQUIRED DOCUMENTS OR PAYMENTS.

18 U. S. C. sec. 1001 makes it a crime for any person knowingly and willfully to make to any Department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

This form may be reproduced provided that the copies are exact reproductions on one sheet of both sides of this official form, in accordance with the provisions of 43 CFR 3123.1(a).

LEASE TERMS

Sec. 1. *Rights of lessee.*—The lessee is granted the exclusive right and privilege to drill for, mine, extract, remove, and dispose of all the oil and gas deposits, except helium gas, in the lands leased, together with the right to construct and maintain thereupon, all works, buildings, plants, waterways, roads, telegraph or telephone lines, pipelines, reservoirs, tanks, pumping stations, or other structures necessary to the full enjoyment thereof, for a period of 10 years, and so long thereafter as oil or gas is produced in paying quantities; subject to any unit agreement heretofore or hereafter approved by the Secretary of the Interior, the provisions of said agreement to govern the lands subject thereto where inconsistent with the terms of this lease.

Sec. 2. The lessee agrees:

(a) *Bonds.*—(1) To file any bond required by this lease and the current regulations and until such bond is filed not to enter on the land under this lease. (2) To maintain any bond furnished by the lessee as a condition for the issuance of this lease. (3) To furnish a bond in a sum double the amount of $2 per acre annual rental but not less than $1,000 nor more than $10,000, upon the inclusion of any part of the leased land within the known geologic structure of a producing oil or gas field. (4) To furnish prior to beginning of drilling operations and maintain at all times thereafter as required by the lessor a bond in the penal sum of $10,000 with approved corporate surety, or with deposit of United States bonds as surety therefor, conditioned upon compliance with the terms of this lease, unless a bond in that amount is already being maintained or unless such a bond furnished by an operator of the lease is accepted. (5) Until a general lease bond is filed to furnish and maintain a bond in the penal sum of not less than $1,000 in those cases in which a bond is required by law for the protection of the owners of surface rights. In lieu of any of the bonds described herein, the lessee may file such other bond as the regulations may permit.

(b) *Cooperative or unit plan.*—Within 30 days of demand, or, if the leased land is committed to an approved unit or cooperative plan and such plan is terminated prior to the expiration of this lease, within 30 days of demand made thereafter, to subscribe to and to operate under such reasonable cooperative or unit plan for the development and operation of the area, field, or pool, or part thereof, embracing the lands included herein as the Secretary of the Interior may then determine to be practicable and necessary or advisable, which plan shall adequately protect the rights of all parties in interest, including the United States.

(c) *Wells.*—(1) To drill and produce all wells necessary to protect the leased land from drainage by wells on lands not the property of the lessor, or lands of the United States leased at a lower royalty rate, or as to which the royalties and rentals are paid into different funds than are those of this lease; or in lieu of any part of such drilling and production, with the consent of the Director of the Geological Survey, to compensate the lessor in full each month for the estimated loss of royalty through drainage in the amount determined by said Director; (2) at the election of the lessee, to drill and produce other wells in conformity with any system of well spacing or production allotments affecting the field or area in which the leased lands are situated, which is authorized and sanctioned by applicable law or by the Secretary of the Interior; and (3) promptly after due notice in writing to drill and produce such other wells as the Secretary of the Interior may reasonably require in order that the leased premises may be properly and timely developed and produced in accordance with good operating practice.

(d) *Rentals and royalties.*—(1) To pay rentals and royalties in amounts or value of production removed or sold from the the leased lands as follows:

Rentals.—To pay the lessor in advance an annual rental at the following rates:

- (a) If the lands are wholly outside the known geologic structure of a producing oil or gas field:
  - (i) For each lease year a rental of ~~50 cents~~ 1.00 per acre or fraction of an acre.
- (b) If the lands are wholly or partly within the known geologic structure of a producing oil or gas field:
  - (i) Beginning with the first lease year after 30 days' notice that all or part of the land is included in such a structure and for each year thereafter, prior to a discovery of oil or gas on the lands leased, $2 per acre or fraction of an acre.
  - (ii) If this lease is committed to an approved cooperative or unit plan which includes a well capable of producing oil or gas and contains a general provision for allocation of production, the rental prescribed for the respective lease years in subparagraph (a) of this section, shall apply to the acreage not within a participating area.

Minimum royalty.—Commencing with the lease year beginning on or after a discovery on the leased land, to pay the lessor in lieu of rental, a minimum royalty of $1 per acre or fraction thereof at the expiration of each lease year, or the difference between the actual royalty paid during the year if less than $1 per acre, and the prescribed minimum royalty of $1 per acre, provided that if this lease is unitized, the minimum royalty shall be payable only on the participating acreage and rental shall be payable on the nonparticipating acreage as provided in subparagraph (b)(ii) above

Royalty on production.—(1) To pay the lessor 12½ percent royalty on the production removed or sold from the leased lands computed in accordance with the Oil and Gas Operating Regulations (30 CFR Pt. 221).

(2) It is expressly agreed that the Secretary of the Interior may establish reasonable minimum values for purposes of computing royalty on any or all oil, gas, natural gasoline, and other products obtained from gas, due consideration being given to the highest price paid for a part or for a majority of production of like quality in the same field, to the price received by the lessee, to posted prices, and to other relevant matters and, whenever appropriate, after notice and opportunity to be heard.

(3) When paid in value, such royalties on production shall be due and payable monthly on the last day of the calendar month next following the calendar month in which produced. When paid in amount of production, such royalty products shall be delivered in merchantable condition on the premises where produced without cost to lessor, unless otherwise agreed to by the parties hereto, at such times and in such tanks provided by the lessee as reasonably may be required by the lessor, but in no case shall the lessee be required to hold such royalty oil or other products in storage beyond the last day of the calendar month next following the calendar month in which produced nor be responsible or held liable for the loss or destruction of royalty oil or other products in storage from causes over which he has no control.

(4) Rentals or minimum royalties may be waived, suspended or reduced and royalties on the entire leasehold or any portion thereof segregated for royalty purposes may be reduced if the Secretary of the Interior finds that, for the purpose of encouraging the greatest ultimate recovery of oil or gas and in the interest of conservation of natural resources, it is necessary, in his judgment, to do so in order to promote development, or because the lease cannot be successfully operated under the terms fixed herein.

(e) *Payments.*—Unless otherwise directed by the Secretary of the Interior, to make rental, royalty, or other payments to the lessor, to the order of the Bureau of Land Management at the places mentioned in the regulation 43 CFR 3102.2. If there is no well on the leased lands capable of producing oil or gas in paying quantities, the failure to pay rental on or before the anniversary date shall automatically terminate the lease by operation of law. However, if the time for payment falls on a day in which the proper office to receive payment is closed, payment shall be deemed timely if made on the next official working day.

(f) *Contracts for disposal of products.*—To file with the Oil and Gas Supervisor of the Geological Survey not later than 30 days after the effective date thereof any contract, or evidence of other arrangement, for the sale or disposal of oil, gas, natural gasoline, and other products of the leased land; *Provided*, That nothing in any such contract or other arrangement shall be construed as modifying any of the provisions of this lease, including, but not limited to, provisions relating to gas waste, taking royalty in kind, and the method of computing royalties due as based on a minimum valuation and in accordance with the Oil and Gas Operating Regulations.

(g) *Statements, plats and reports.*—At such times and in such form as the lessor may prescribe, to furnish detailed statements showing the amounts and quality of all produ[illegible]moved and sold from the lease, the proceeds therefrom, and [illegible]mount used for production purposes or unavoidably lost; a p[illegible]howing development work and improvements on the leased land, and a report with respect to stockholders, investments, depreciation and costs.

(h) *Well records.*—To keep a daily drilling record, a log, and complete information on all well surveys and tests in form acceptable to or prescribed by the lessor of all wells drilled on the leased lands, and an acceptable record of all subsurface investigations affecting said lands, and to furnish them, or copies thereof, to the lessor when required. All information obtained under this paragraph, upon the request of lessee, shall not be open to inspection by the public until the expiration of the lease.

(i) *Inspection.*—To keep open at all reasonable times for the inspection of any duly authorized officer of the Department, the leased premises and all wells, improvements, machinery, and fixtures thereon and all books, accounts, maps and records relative to operations and surveys or investigations on the leased lands or under the lease All information obtained pursuant to any such inspection, upon the request of the lessee, shall not be open to inspection by the public until the expiration of the lease.

(j) *Diligence, prevention of waste, health and safety of workmen.*—To exercise reasonable diligence in drilling and producing the wells herein provided for unless consent to suspend operations temporarily is granted by the lessor; to carry on all operations in accordance with approved methods and practice as provided in the Oil and Gas Operating Regulations, having due regard for the prevention of waste of oil or gas or damage to deposits or formations containing oil, gas, or water or to coal measures or other mineral deposits, for conservation of gas energy, for the preservation and conservation of the property for future productive operations, and for the health and safety of workmen and employees; to plug properly and effectively all wells drilled in accordance with the provisions of this lease or of any prior lease or permit upon which the right to this lease was based before abandoning the same; to carry out at expense of the lessee all reasonable orders of the lessor relative to the matters in this paragraph, and that on failure of the lessee so to do the lessor shall have the right to enter on the property and to accomplish the purpose of such orders at the lessee's cost: *Provided,* That the lessee shall not be held responsible for delays or casualties occasioned by causes beyond lessee's control.

(k) *Taxes and wages, freedom of purchase.*—To pay when due all taxes lawfully assessed and levied under the laws of the State or the United States upon improvements, oil, and gas produced from the lands hereunder, or other rights, property, or assets of the lessee; to accord all workmen and employees complete freedom of purchase, and to pay all wages due workmen and employees at least twice each month in the lawful money of the United States

(l) *Equal Opportunity clause.*—During the performance of this contract the lessee agrees as follows:

(1) The lessee will not discriminate against any employee or applicant for employment because of race, creed, color, or national origin. The lessee will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, color, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The lessee agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

(2) The lessee will, in all solicitations or advertisements for employees placed by or on behalf of the lessee, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, or national origin

(3) The lessee will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the lessee's commitments under Section 202 of Executive Order No 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The lessee will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor

(5) The lessee will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the lessee's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be cancelled, terminated or suspended in whole or in part and the lessee may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The lessee will include the provisions of Paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The lessee will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions including sanctions for noncompliance: *Provided, however,* That in the event the lessee becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the lessee may request the United States to enter into such litigation to protect the interests of the United States

(m) *Assignment of oil and gas lease or interest therein.*—As required by applicable law, to file for approval by the lessor any instrument of transfer made of this lease or any interest therein, including assignments of record title, operating agreements and subleases, working or royalty interests, within 90 days from the date of final execution thereof.

(n) *Pipelines to purchase or convey at reasonable rates and without discrimination*—If owner, or operator, or owner of a controlling interest in any pipeline or of any company operating the same which may be operated accessible to the oil or gas derived from lands under this lease, to accept and convey and, if a purchaser of such products to purchase at reasonable rates and without discrimination the oil or gas of the Government or of any citizen or company not the owner of any pipeline, operating a lease or purchasing or selling oil, gas, natural gasoline, or other products under the provisions of the act, or under the provisions of the act of August 7, 1947 (61 Stat 913, 30 U.S.C. sec. 351).

(o) *Lands patented with oil and gas deposits reserved to the United States.*—To comply with all statutory requirements and regulations thereunder, if the lands embraced herein have been or shall hereafter be disposed of under the laws reserving to the United States the deposits of oil and gas therein, subject to such conditions as are or may hereafter be provided by the laws reserving such oil or gas.

(p) *Reserved or segregated lands.*—If any of the land included in this lease is embraced in a reservation or segregated for any particular purpose, to conduct operations thereunder in conformity with such requirements as may be made by the Director, Bureau of Land Management, for the protection and use of the land for the purpose for which it was reserved or segregated, so far as may be consistent with the use of the land for the purpose of this lease which latter shall be regarded as the dominant use unless otherwise provided herein or separately stipulated

(q) *Protection of surface, natural resources, and improvements.* The lessee agrees to take such reasonable steps as may be needed to prevent operations on the leased lands from unnecessarily: (1) causing or contributing to soil erosion or damaging crops, including forage, and timber growth thereon or on Federal or non Federal lands in the vicinity; (2) polluting air and water; (3) damaging improvements owned by the United States or other parties, or (4) destroying, damaging or removin[illegible]ils, historic or prehistoric ruins, or artifacts and upon any [illegible] or total relinquishment or the cancellation or expiration [illegible] this lease, or at any other time prior thereto when required [illegible]d to the extent deemed [illegible] to fill [illegible] ditches and other excavations, remove or cover all debris, and so far a reasonably possible, restore the surface of the leased land an access roads to their former condition, including the removal o structures as and if required. The lessor may prescribe the step to be taken and restoration to be made with respect to the lease lands and improvements thereon whether or not owned by th United States. *Antiquities and objects of historic value.*—When American antiquities or other objects of historic or scientific interest including but not limited to historic or prehistori ruins, fossils or artifacts are discovered in the performance o this lease, the item(s) or condition(s) will be left intact an immediately brought to the attention of the contracting officer o his authorized representative.

(r) *Overriding royalties.*—Not to create overriding royaltie in excess of five percent except as otherwise authorized by th regulations.

(s) *Deliver premises in cases of forfeiture.*—To deliver u to the lessor in good order and condition the land leased including all improvements which are necessary for the preservation c producing wells.

Sec. 3. The lessor reserves:

(a) *Easements and rights-of-way.*—The right to permit fo joint or several use easements or rights-of-way, including easements in tunnels upon, through, or in the lands leased, occupie or used as may be necessary or appropriate to the working c the same or of other lands containing the deposits described i the act, and the treatment and shipment of products thereof b or under authority of the Government, its lessees or permittees and for other public purposes.

(b) *Disposition of surface.*—The right to lease, sell, or otherwise dispose of the surface of the leased lands under existin law or laws hereafter enacted, insofar as said surface is no necessary for the use of the lessee in the extraction and remova of the oil and gas therein, or to dispose of any resource in suc lands which will not unreasonably interfere with operations unde this lease.

(c) *Monopoly and fair prices.*—Full power and authority t promulgate and enforce all orders necessary to insure the sal of the production of the leased lands to the United States and t the public at reasonable prices, to protect the interests of th United States, to prevent monopoly, and to safeguard the publi welfare.

(d) *Helium.*—Pursuant to Section 1 of the act as amended the ownership of helium and the right to extract or have it extracted from all gas produced under this lease, subject to suc rules and regulations as shall be prescribed by the Secretary o the Interior. If the lessor elects to take the helium, the lesse shall deliver all or any portion of gas containing the same to th lessor, in the manner required by the lessor, at any point on th leased premises, or, if the area is served at the time of productio by a gas-gathering system owned or operated by the lessee, a any point in that system specified by the lessor, for extraction o the helium by such means as the lessor may provide. The residu shall be returned to the lessee, with no substantial delay in th delivery of the gas produced from the well to the owner or purchaser thereof. Save for the value of the helium extracted, th lessee shall not suffer a diminution of the value of the gas produced from the well, or loss otherwise, including any expens caused solely by the requirement of the delivery of the gas t permit the extraction of helium, for which he is not reasonabl compensated. The lessor reserves the right to erect, maintain and operate any and all reduction works necessary for extractio of helium on the leased premises. The lessee further agrees t include in any contract of sale of gas from the lands subject t this lease provisions setting forth that the lessor owns, and reserves the right to extract or have extracted, any helium in the ga sold, and that the lessor may take the gas from a pipeline carrie or any other gas-gathering system and extract the helium an return the gas to the owner thereof, without delay other than tha caused by the extraction process; save for the value of the helium the owner shall not suffer any diminution of the value of the ga from which helium has been extracted, or any other loss arisin from the extraction of helium, including any expense caused solel by the requirement of the delivery of the gas to permit the extraction of helium, for which he is not reasonably compensated It is further agreed that any rights reserved vested in the lesso under this paragraph shall also run to any agent or assignee o the lessor or any purchaser of the rights of the lessor.

(e) *Taking of royalties.*—All rights pursuant to sectio of the act to take royalties in amount or in value of productio

(f) *Casing.*—All rights pursuant to section 40 of the act t purchase casing, and lease or operate valuable water wells.

Sec. 4. *Drilling and producing restrictions.*—It is agree that the rate of prospecting and developing and the quantity an rate of production from the lands covered by this lease shall b subject to control in the public interest by the Secretary of th Interior, and in the exercise of his judgment the Secretar may take into consideration, among other things, Federal law State laws, and regulations issued thereunder, or lawful agreements among operators regulating either drilling or production, o both. After unitization, the Secretary of the Interior, or an person, committee, or State or Federal officer or agency s authorized in the unit plan, may alter or modify from time t time, the rate of prospecting and development and the quantit and rate of production from the lands covered by this lease.

Sec. 5. *Surrender and termination of lease.*—The lesse may surrender this lease or any legal subdivision thereof by filin in the proper land office a written relinquishment, in triplicat which shall be effective as of the date of filing subject to the continued obligation of the lessee and his surety to make payment c all accrued rentals and royalties and to place all wells on the lan to be relinquished in condition for suspension or abandonment i accordance with the applicable lease terms and regulations.

Sec. 6. *Purchase of materials, etc., on termination c lease.*—Upon the expiration of this lease, or the earlier termination thereof pursuant to the last preceding section, the lesse shall have the privilege at any time within a period of 90 day thereafter of removing from the premises all machinery, equi ment, tools, and materials other than improvements needed fo producing wells. Any materials, tools, appliances, machiner structures, and equipment subject to removal as above provide which are allowed to remain on the leased lands shall becom the property of the lessor on expiration of the 90-day period c such extension thereof as may be granted because of adver climatic conditions throughout said period: *Provided*, That th lessee shall remove any or all of such property where so directe by the lessor.

Sec. 7. *Proceedings in case of default.*—If the lessee sha not comply with any of the provisions of the act or the regula tions thereunder or of the lease, or shall make default in th performance or observance of any of the terms hereof (exce that of payment of annual rental which results in the automat termination of the lease), and such default shall continue for period of 30 days after service of written notice thereof by th lessor, this lease may be canceled by the Secretary of the Interi in accordance with section 31 of the act, except that if this leas covers lands known to contain valuable deposits of oil or ga the lease may be canceled only by judicial proceedings in th manner provided in section 31 of the act; but this provision sha not be construed to prevent the exercise by the lessor of an legal or equitable remedy which the lessor might otherwise hav Upon cancellation of this lease, any casing, material, o equipment determined by the lessor to be necessary for use plugging or preserving any well drilled on the leased land sha become the property of the lessor. A waiver of any particul cause of cancellation and forfeiture shall not prevent the ca cellation and forfeiture of this lease for any other cause o cancellation and forfeiture, or for the same cause occurring any other time.

Sec. 8. *Heirs and successors-in-interest.*—It is furth agreed that each obligation hereunder shall extend to and b binding upon, and every benefit hereof shall inure to, the heir executors, administrators, successors, or assigns of the respecti parties hereto.

Sec. 9. *Unlawful interest.*—It is also further agreed th no Member of, or Delegate to, Congress, or Resident Commi sioner, after his election or appointment, or either before o after he has qualified and during his continuance in office, an that no officer, agent, or employee of the Department of th Interior, except as provided in 43 CFR 7.4(a)(1), shall be a mitted to any share or part in this lease or derive any benef that may arise therefrom; and the provisions of Sec. 3741 the Revised Statutes of the United States, as amended (4 U.S.C. Sec. 22) and Secs. 431, 432, and 433, Title 18 U. Code, relating to contracts, enter into and form a part of th lease so far as the same may be applicable.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SURFACE DISTURBANCE STIPULATIONS

District Supervisor
U.S. Geological Survey
P. O. Box 2550
Billings, MT 59103

Phone: (406) 657-6367

Management Agency *(name)*

District Ranger
Rocky Mountain Ranger District
Lewis & Clark National Forest

Address *(include zip code)*

Box 340
Choteau, MT 59422

1. Notwithstanding any provision of this lease to the contrary, any drilling, construction, or other operation on the leased lands that will disturb the surface thereof or otherwise affect the environment, hereinafter called "surface disturbing operation," conducted by lessee shall be subject, as set forth in this stipulation, to prior approval of such operation by the Area Oil and Gas Supervisor in consultation with appropriate surface management agency and to such reasonable conditions, not inconsistent with the purposes for which this lease is issued, as the Supervisor may require to protect the surface of the leased lands and the environment.

2. Prior to entry upon the land or the disturbance of the surface thereof for drilling or other purposes, lessee shall submit for approval two (2) copies of a map and explanation of the nature of the anticipated activity and surface disturbance to the District Engineer or Area Oil and Gas Supervisor, as appropriate, and will also furnish the appropriate surface management agency named above, with a copy of such map and explanation.

An environmental analysis will be made by the Geological Survey in consultation with the appropriate surface management agency for the purpose of assuring proper protection of the surface, the natural resources, the environment, existing improvements, and for assuring timely reclamation of disturbed lands.

3. Upon completion of said environmental analysis, the District Engineer or Area Oil and Gas Supervisor, as appropriate, shall notify lessee of the conditions, if any, to which the proposed surface disturbing operations will be subject.

Said conditions may relate to any of the following:

(a) Location of drilling or other exploratory or developmental operations or the manner in which they are to be conducted;

(b) Types of vehicles that may be used and areas in which they may be used; and

(c) Manner or location in which improvements such as roads, buildings, pipelines, or other improvements are to be constructed.

Form 3109-5 (August 1973)

Form 3109–3
(June 1971)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

STIPULATION FOR LANDS UNDER JURISDICTION OF DEPARTMENT OF AGRICULTURE*

The lands embraced in this lease or permit being under the jurisdiction of the Secretary of Agriculture, the lessee or permittee hereby agrees:

(1) To conduct all operations authorized by this lease or permit with due regard for good land management, not to cut or destroy timber without first obtaining permission from the authorized representative of the Secretary of Agriculture, and to pay for all such timber cut or destroyed at the rates prescribed by such representative; to avoid unnecessary damage to improvements, timber, crops, or other cover; unless otherwise authorized by the Secretary of Agriculture, not to drill any well, carry on operations, make excavations, construct tunnels, drill, or otherwise disturb the surface of the lands within 200 feet of any building standing on the lands and whenever required, in writing, by the authorized representative of the Secretary of Agriculture to fence or fill all sump holes, ditches, and other excavations, remove or cover all debris, and so far as reasonably possible, restore the surface of the lands to their former condition, including the removal of structures as and if required, and when required by such representative to bury all pipelines below plow depth.

(2) To do all in his power to prevent and suppress forest, brush, or grass fires on the lands and in their vicinity, and to require his employees, contractors, subcontractors, and employees of contractors or subcontractors to do likewise. Unless prevented by circumstances over which he has no control, the lessee or permittee shall place his employees, contractors, subcontractors, and employees of contractors and subcontractors employed on the lands at the disposal of any authorized officer of the Department of Agriculture for the purpose of fighting forest, brush, or grass fires on or originating on the lands or on adjacent areas or caused by the negligence of the lessee or permittee or his employees, contractors, subcontractors and employees of contractors and subcontractors, with the understanding that payment for such services shall be made at rates to be determined by the authorized representative of the Secretary of Agriculture, which rates shall not be less than the current rates of pay prevailing in the vicinity for services of a similar character: *Provided*, that if the lessee or permittee, his employees, contractors, subcontractors, or employees of contractors or subcontractors, caused or could have prevented the origin or spread of said fire or fires, no payment shall be made for services so rendered.

During periods of serious fire danger to forest, brush, or grass, as may be specified by the authorized representative of the Secretary of Agriculture, the lessee or permittee shall prohibit smoking and the building of camp and lunch fires by his employees, contractors, subcontractors, and employees of contractors or subcontractors within the area involved except at established camps, and shall enforce this prohibition by all means within his power: *Provided*, that the authorized representative of the Secretary of Agriculture may designate safe places where, after all inflammable material has been cleared away, campfires may be built for the purpose of heating lunches and where, at the option of the lessee or permittee, smoking may be permitted.

The lessee or permittee shall not burn rubbish, trash, or other inflammable materials *except* with the consent of the authorized representative of the Secretary of Agriculture and shall not use explosives in such a manner as to scatter inflammable materials on the surface of the lands during the forest, brush, or grass fire season, *except* as authorized to do so or on areas approved by such representative.

The lessee or permittee shall build or construct such fire lines or do such clearing on the lands as the authorized representative of the Secretary of Agriculture decides is essential for forest, brush, and grass fire prevention which is or may be necessitated by the

---

*This form of stipulation may be used in connection with leases and permits issued under the Acts of February 25, 1920, as amended (30 U.S.C. 181 *et seq.*); August 7, 1947 (30 U.S.C. 351 *et seq.*); February 7, 1927, as amended (30 U.S.C. 281 *et seq.*); April 17, 1926, as amended (30 U.S.C. 271 *et seq.*); June 28, 1944 (58 Stat. 483–485); September 1, 1949 (30 U.S.C. 192c); June 30, 1950 (16 U.S.C. 508b); or under the authority of any of the Acts cited in Section 402 of the President's Reorganization Plan No. 3 of 1946 (5 U.S.C. 133y–16, Note).

exercise of the privileges authorized by this lease or permit, and shall maintain such fire tools at his headquarters or at the appropriate location on the lands as are deemed necessary by such representative.

(3) In the location, design, construction, and maintenance of all authorized works, buildings, plants, waterways, roads, telegraph or telephone lines, pipelines, reservoirs, tanks, pumping stations, or other structures or clearance, the lessee or permittee shall do all things reasonably necessary to prevent or reduce to the fullest extent scarring and erosion of the lands, pollution of the water resources and any damage to the watershed. Where construction, operation, or maintenance of any of the facilities on or connected with this lease or permit causes damage to the watershed or pollution of the water resources, the lessee or permittee agrees to repair such damage and to take such corrective measures to prevent further pollution or damage to the watershed as are deemed necessary by the authorized representative of the Secretary of Agriculture.

(4) If in the opinion of the authorized representative of the Secretary of Agriculture, the lands are valuable for watershed protection, the lessee or permittee shall provide for control of surface runoff and return the affected area to as productive condition as practicable.

(5) To pay the lessor or permitter or his tenant or the surface owner or his tenant, as the case may be, for any and all damage to or destruction of property caused by the lessee's or permittee's operations hereunder; to save and hold the lessor or permitter or the surface owner or their tenants harmless from all damage or claims for damage to persons or property resulting from the lessee's or permittee's operations under this lease or permit.

(6) To recognize existing uses and commitments, in the form of Department of Agriculture grazing, timber cutting, and special use permits, water developments, ditch, road, trail, pipeline, telephone line, and fence rights-of-way and other similar improvements, and to conduct his operations so as to interfere as little as possible with the rights and privileges granted by these permits or with other existing uses.

(7) To install and maintain cattle guards to prevent the passage of livestock in any openings made in fences by the lessee or permittee or his contractors to provide access to the lands covered by this lease or permit for automotive and other equipment.

(8) If lessee or permittee shall construct any camp on the lands, such camp shall be located at a place approved by the authorized representative of the Secretary of Agriculture, and such representative shall have authority to require that such camp be kept in a neat and sanitary condition.

(9) To comply with all federally-approved rules and regulations of the Secretary of Health, Education, and Welfare governing the emission of pollutants into the air from activities which are embraced in this lease or permit.

(10) To comply with all the rules and regulations of the Secretary of Agriculture governing the national forests or other lands under his jurisdiction which are embraced in this lease or permit.

(11) Unless otherwise authorized, prior to the beginning of operations to appoint and maintain at all times during the term of this lease or permit a local agent upon whom may be served written orders or notices respecting matters contained in this stipulation, and to inform the authorized representative of the Secretary of Agriculture, in writing, of the name and address of such agent. If a substitute agent is appointed, the lessee or permittee shall immediately so inform the said representative.

(12) To address all matters relating to this stipulation
to District Ranger
Rocky Mountain Ranger District
at Lewis & Clark National Forest
Box 340
Choteau, MT 59422
,

who is the authorized representative of the Secretary of Agriculture, or to such other representative as may from time to time, be designated, provided that such designation shall be in writing and be delivered to the lessee or permittee or his agent.

(Signature of Lessee)

GPO 880-292

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

M 25173
(Serial Number)

OIL AND GAS LEASE STIPULATIONS

CULTURAL AND PALEONTOLOGICAL RESOURCES — The Federal surface management agency is responsible for assuring that the leased lands are examined to determine il cultural resources are present and to specify mitigation measures. Prior to undertaking any surface-disturbing activities on the lands covered by this lease, the lessee or operator, unless notified to the contrary by the authorized officer of the surface management agency, shall:

1. Engage the services of a qualified cultural resource specialist acceptable to the Federal surface management agency to conduct an intensive inventory for evidence of cultural resource values;

2. Submit a report acceptable to the authorized officer of the surface management agency and the District Engineer, Geological Survey; and

3. Implement mitigation measures required by the surface management agency to preserve or avoid destruction of cultural resource values. Mitigation may include relocation of proposed facilities, testing and salvage or other protective measures. All costs of the inventory and mitigation will be borne by the lessee or operator, and all data and materials salvaged will remain under the jurisdiction of the U.S. Government as appropriate.

The lessee or operator shall immediately bring to the attention of the District Engineer, Geological Survey, or the authorized officer of the Federal surface management agency any cultural or paleontological resources or any other objects of scientific interest discovered as a result of surface operations under this lease, and shall leave such discoveries intact until directed to proceed by the District Engineer, Geological Survey.

ENDANGERED OR THREATENED SPECIES — The Federal surface management agency is responsible for assuring that the leased land is examined prior to undertaking any surface-disturbing activities to determine effects upon any plant or animal species, listed or proposed for listing as endangered or threatened, or their habitats. The findings of this examination may result in some restrictions to the operator's plans or even disallow use and occupancy that would be in violation of the Endangered Species Act of 1973 by detrimentally affecting endangered or threatened species or their habitats.

The lessee/operator may, unless notified by the authorized officer of the surface management agency that the examination is not necessary, conduct the examination on the leased lands at his discretion and cost. This examination must be done by or under the supervision of a qualified resources specialist approved by the surface management agency. An acceptable report must be provided to the surface management agency identifying the anticipated effects of a proposed action on endangered or threatened species or their habitats.

ESTHETICS — To maintain esthetic values, all surface-disturbing activities, semipermanent and permanent facilities may require special design including location, painting and camouflage to blend with the natural surroundings and meet the intent of the visual quality objectives of the Federal surface management agency.

EROSION CONTROL — Surface disturbing activities may be prohibited during muddy and/or wet soil periods. This limitation does not apply to operation and maintenance of producing wells using authorized roads.

CONTROLLED OR LIMITED SURFACE USE STIPULATION — This stipulation may be modified by special stipulations which are hereto attached or when specifically approved in writing by the District Engineer, Geological Survey, with concurrence of the Federal surface management agency. Distances and/or time periods may be made less restrictive depending on the actual onground conditions. The prospective lessee should contact the Federal surface management agency for more specific locations and information regarding the restrictive nature of this stipulation.

The lessee/operator is given notice that the lands within this lease may include special areas and that such areas may contain special values, may be needed for special purposes, or may require special attention to prevent damage to surface and/or other resources. Possible special areas are identified below. Any surface use or occupancy within such special areas will be strictly controlled or, if absolutely necessary, excluded. Use or occupancy will be restricted only when the Geological Survey and/or the surface management agency demonstrates the restriction necessary for the protection of such special areas and existing or planned uses. Appropriate modifications to imposed restrictions will be made for the maintenance and operations of producing oil and gas wells.

After the Federal surface management agency has been advised of specific proposed surface use or occupancy on the leased lands, and on request of the lessee/operator, the Agency will furnish further data on any special areas which may include:

> 100 feet from the edge of the rights-of-way from highways, designated county roads and appropriate federally-owned or controlled roads and recreation trails.
>
> 500 feet, or when necessary, within the 25-year flood plain from reservoirs, lakes, and ponds and intermittent, ephemeral or small perennial streams; 1,000 feet, or when necessary, within the 100-year flood plain from larger perennial streams, rivers, and domestic water supplies.
>
> 500 feet from grouse strutting grounds. Special care to avoid nesting areas associated with strutting grounds will be necessary during the period from March 1 to June 30. One-fourth mile from identified essential habitat of state and federal sensitive species. Crucial wildlife winter ranges during the period from December 1 to May 15, and in elk calving areas, during the period from May 1 to June 30.
>
> 300 feet from occupied buildings, developed recreational areas, undeveloped recreational areas receiving concentrated public use and sites eligible for or designated as National Register sites.
>
> Seasonal road closures, roads for special uses, specified roads during heavy traffic periods and on areas having restrictive off-road vehicle designations.
>
> On slopes over 30 percent, or 20 percent on extremely erodable or slumping soils.

Chevron U.S.A. Inc.

August 11, 1981
Date

Lessee's Signature
By: Assistnat Secretary

MSO 3100-47c (April 1981)

ED STATES DEPARTMENT OF THE IN ..OR
Bureau of Land Management

Serial No. M 25173

Oil & Gas Lease Stipulations

The following stipulations may be modified when specifically approved in writing by the District Engineer, U.S. Geological Survey with the concurrence of the authorized officer of the surface management agency.

No Surface Occupancy Stipulation

% of Lea

X) No occupancy or other activity on the surface of the following described lands is allowed under this lease: (63)

(a) T.29N., R.12W., P.M.M.
Sec. 33: N½, SW¼, portions of E½SE¼, W½SE¼
Sec. 34: portions of N½, portions of SW¼, SE½
Sec. 35: portions of NE¼, portions of N½NW¼, S½NW¼, S½
(b)

Reasons for this restriction are:
(a) Slopes greater than 60% and landtypes 182 and 202
(b)

Surface Occupancy Restriction Stipulation (by location)

% of Lea

) No ____________ will be allowed within: ( )

____ feet of ____________ located within:

____ feet of ____________ located within:

____ feet of ____________ located within:

____ feet of ____________ located within:

This area contains approximately ____ total acres

Surface Occupancy Restriction Stipulation (timing)

% of Lea

) (a) In order to (minimize) (protect) ____________ will be allowed only during: ____ ( )

(b) In order to (minimize) (protect) ____________ will be allowed only during: ____

This does not apply to maintenance and operation of producing wells and facilities. Lands within the leased area to which this stipulation applies are described as follows:
(a)

(b)

Road Use Stipulation

% of Le

) The ____________ will not be used as an access road for activities on this lease except as follows: ( )

Chevron U.S.A. Inc.

August 11, 1981
Date

Signature
NSO 3100-55 (January 1981)

Appendix A - 9

UNITED STATES DEPARTMENT OF THE INTERIOR
Bureau of Land Management

(OG Sim. Serial No.)	M 25173 (Serial No.)

LIMITED SURFACE USE STIPULATION

The lessee is given notice that all or portions of the lease area contain special values, are needed for special purposes, or require special attention to prevent damage to surface resources. Any surface use or occupancy within such areas will be strictly controlled. Use or occupancy will be authorized only when the lessee/operator demonstrates that the area is essential for operations and when the lessee/operator submits a surface use and operations plan, which is satisfactory to the Geological Survey and the Federal Surface Management Agency (SMA), for the protection of these special values and existing or planned uses. Appropriate modifications to the imposed restrictions will be made for the maintenance and operation of producing oil and gas wells. After the SMA has been advised of the proposed surface use or occupancy on those lands, and on request of the lessee/operator, the SMA will furnish further data on such areas, which now include but are not limited to:

T.29N., R.12W., P.M.M. (29%)

Sec. 33: portions of E½SE¼
Sec. 34: portions of N½, portions of E½SW¼, W½SW¼
Sec. 35: portions of NE¼, portions of N½NW¼

Reason for Restriction: Landtypes 25, 25c, moderate potential for cutslope failure hazard, Appendix D, Environmental Assessment Oil and Gas Leasing Nonwilderness Lands

Duration of Restriction: (designate months)

All year

Prior to acceptance of this stipulation, the prospective lessee is encouraged to contact the SMA for further information regarding the restrictive nature of this stipulation.

Chevron U.S.A. Inc.

August 11, 1981
Date

Signature
By: Assistant Secretary

MSO 3100-60 (October 1980)

UNITED STATES DEPARTMENT OF THE INTERIOR
Bureau of Land Management

M 25173
(Serial No.)

ACTIVITY COORDINATION STIPULATION

This stipulation may be modified when specifically approved in writing by the District Engineer, Geological Survey with concurrence of the authorized officer of the surface management agency.

(X) This lease includes lands within occupied threatened species habitat, grizzly bear and gray wolf which has resource values sensitive to high levels of activity. In order to minumize impacts to these resources, special conditions, such as unitization prior to approval of operations, and/or other limitations to spread surface disturbance activities over time and space may be required prior to approval and commencement of any operations on the lease.

% of Lease (100)

DEPT. OF INTERIOR
BUR. OF LAND MANAGEMENT
AUG 17 8 09 AM 1981

Chevron U.S.A. Inc.

August 11, 1981
Date

B. M. Wood
Signature
By: Assistant Secretary

MSO 3100-61 (October 1980)

UNITED STATES DEPARTMENT OF THE INTERIOR
Bureau of Land Management

This lease is issued pursuant and subject to the the terms and provisions of Section 302 of the Department of Energy Organization Act (42 U.S.C. 7152) and to the regulations of the Secretary of Energy promulgated thereunder relating to the:

(1) fostering of competition for Federal leases (including but not limited to, prohibition on bidding for development rights by certain types of joint ventures);

(2) implementation of alternative bidding systems authorized for the award of Federal leases;

(3) establishment of diligence requirements for operations conducted on Federal leases (including, but not limited to, procedures relating to the granting or ordering by the Secretary of the Interior of suspension of operations or production as they relate to such requirements);

(4) setting rates of production for Federal leases; and

(5) specifying the procedures, terms, and conditions for the acquisition and disposition of Federal royalty interests taken in kind.

MSO 3100-52 (October 1978)

Billings, Montana
59107

Form 3110—2
(January 1978)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

ORIGINAL

OFFER TO LEASE AND LEASE FOR OIL AND GAS

(Sec. 17 Noncompetitive Public Domain Lease)
Act of February 25, 1920 (41 Stat. 437), as amended (30 U.S.C 181—263)

Name	Sidney M. Longwell
Street	12070 Pecan Grove Court
City State Zip Code	Baton Rouge, LA 70810

M 53323
(Serial Number)

This oil and gas lease is issued for a period of ten (10) years to the above-named lessee pursuant and subject to the provisions of the Mineral Leasing Act and subject to all rules and regulations of the Secretary of the Interior now or hereafter in force, when not inconsistent with any express and specific provisions herein, which are made a part hereof.

Lands included in the lease: State: Montana County: Glacier

#MT 73

T 30 N, R 13 W, PMM
Sec 26: All
Sec 27: All
Sec 28: All excl. HES 723, 1116
Sec 29: All excl. HES 723 & lands within Glacier National Park
Sec 30: All excl. lands within Glacier National Park
Sec 31: All excl. lands within Glacier National Park
Sec 32: All
Sec 33: All
Sec 34: All
Sec 35: All
Sec 36: All.

Lands in offer were not within a known geologic structure on
MAY 17 1982

ACTING
District Supervisor, Resource Evaluation
for the Director
Minerals Management Service

Containing a total of 6247.00 acres	Annual Rental...	$1 per acre or fraction thereof--1st thru 5th year $3 per acre or fraction thereof--6th and each succeeding year

This lease is issued to the successful drawee pursuant to his Simultaneous Oil and Gas application filed under 43 CFR 3112, and is subject to the provisions of that application, those specified on the reverse side hereof, and the special stipulations attached.

Effective date of lease: JUN 1 1982

THE UNITED STATES OF AMERICA

By Judith D. Reed
(Signature of Signing Officer)

Chief, Minerals Adjudication Section
(Title)

MAY 24 1982
(Date)

Sidney M. Longwell
(Signature of Offeror/Lessee)

April 29, 1982
(Date)

LEASE TERMS

Sec. 1. *Rights of lessee.*—The lessee is granted the exclusive right and privilege to drill for, mine, extract, remove, and dispose of all the oil and gas deposits, except helium gas, in the lands leased, together with the right to construct and maintain thereupon, all works, buildings, plants, waterways, roads, telegraph or telephone lines, pipelines, reservoirs, tanks, pumping stations, or other structures necessary to the full enjoyment thereof, for a period of 10 years, and so long thereafter as oil or gas is produced in paying quantities; subject to any unit agreement heretofore or hereafter approved by the Secretary of the Interior, the provisions of said agreement to govern the lands subject thereto where inconsistent with the terms of this lease.

Sec. 2. The lessee agrees:

(a) *Bond.*—(1) To file any bond required by this lease and the current regulations and until such bond is filed not to enter on the land under this lease. (2) To maintain any bond furnished by the lessee as a condition for the issuance of this lease. (3) To furnish a bond in a sum double the amount of $2 per acre annual rental but not less than $1,000 nor more than $10,000, upon the inclusion of any part of the leased land within the known geologic structure of a producing oil or gas field. (4) To furnish prior to beginning of drilling operations and maintain at all times thereafter as required by the lessor a bond in the penal sum of $10,000 with approved corporate surety, or with deposit of United States bonds as surety therefor, conditioned upon compliance with the terms of this lease, unless a bond in that amount is already being maintained or unless such a bond furnished by an operator of the lease is accepted. (5) Until a general lease bond is filed to furnish and maintain a bond in the penal sum of not less than $1,000 in those cases in which a bond is required by law for the protection of the owners of surface rights. In lieu of one of the bonds described herein, the lessee may file such other bond as the regulations may permit.

(b) *Cooperative or unit plan.*—Within 30 days of demand, or, if the leased land is committed to an approved unit or cooperative plan and such plan is terminated prior to the expiration of this lease, within 30 days of demand made thereafter, to subscribe to and to operate under such reasonable cooperative or unit plan for the development and operation of the area, field, or pool, or part thereof, embracing the lands included herein as the Secretary of the Interior may then determine to be practicable and necessary or advisable, which plan shall adequately protect the rights of all parties in interest, including the United States.

(c) *Wells.*—(1) To drill and produce all wells necessary to protect the leased land from drainage by wells on lands not the property of the lessor, or lands of the United States leased at a lower royalty rate, or as to which the royalties and rentals are paid into different funds than are those of this lease; or in lieu of any part of such drilling and production, with the consent of the Director of the Geological Survey, to compensate the lessor in full each month for the estimated loss of royalty through drainage in the amount determined by said Director, (2) at the election of the lessee to drill and produce other wells in conformity with any system of well spacing or production allotments affecting the field or area in which the leased lands are situated, which is authorized and sanctioned by applicable law or by the Secretary of the Interior, and (3) promptly after due notice in writing to drill and produce such other wells as the Secretary of the Interior may reasonably require in order that the leased premises may be properly and timely developed and produced in accordance with good operating practice.

(d) *Rentals and royalties.*—(1) To pay rentals and royalties in amounts or value of production removed or sold from the the leased lands as follows.

Rentals.— To pay the lessor in advance an annual rental at the following rates

(a) If the lands are wholly outside the known geologic structure of a producing oil or gas field

  (i) for the first through fifth lease year, a rental of $1.00 per acre or fraction thereof

  (ii) for the sixth and each succeeding year, a rental of $3.00 per acre or fraction thereof

(b) If the lands are wholly or partly within the known geologic structure of a producing oil or gas field

  (i) for the second through fifth lease year beginning with the first lease year after 30 days notice that all or part of the land is included in such a structure prior to a discovery of oil or gas on the lands leased $2.00 per acre or fraction thereof

  (ii) for the sixth and each succeeding year a rental of $3.00 per acre or fraction thereof

  (iii) for any lease year in which this lease is committed to an approved cooperative or unit plan which includes a well capable of producing oil or gas and contains a general provision for the allocation of production, the rental prescribed for the respective lease years in subparagraph (a) of this section shall apply to the acreage not within a participating area

Minimum royalty.—Commencing with the lease year beginning on or after a discovery on the leased land, to pay the lessor in lieu of rental, a minimum royalty of $1 per acre or fraction thereof at the expiration of each lease year, or the difference between the actual royalty paid during the year if less than $1 per acre, and the prescribed minimum royalty of $1 per acre, provided that if this lease is unitized, the minimum royalty shall be payable only on the participating acreage and rental shall be payable on the nonparticipating acreage as provided in subparagraph (b)(iii) above.

Royalty on production.—(1) To pay the lessor 12½ percent royalty on the production removed or sold from the leased lands computed in accordance with the Oil and Gas Operating Regulations (30 CFR Pt. 221).

(2) It is expressly agreed that the Secretary of the Interior may establish reasonable minimum values for purposes of computing royalty on any or all oil, gas, natural gasoline, and other products obtained from gas, due consideration being given to the highest price paid for a part or for a majority of production of like quality in the same field, to the price received by the lessee, to posted prices, and to other relevant matters and, whenever appropriate, after notice and opportunity to be heard.

(3) When paid in value, such royalties on production shall be due and payable monthly on the last day of the calendar month next following the calendar month in which produced. When paid in amount of production, such royalty products shall be delivered in merchantable condition on the premises where produced without cost to lessor, unless otherwise agreed to by the parties hereto, at such times and in such tanks provided by the lessee as reasonably may be required by the lessor, but in no case shall the lessee be required to hold such royalty oil or other products in storage beyond the last day of the calendar month next following the calendar month in which produced nor be responsible or held liable for the loss or destruction of royalty oil or other products in storage from causes over which he has no control.

(4) Rentals or minimum royalties may be waived, suspended or reduced and royalties on the entire leasehold or any portion thereof segregated for royalty purposes may be reduced if the Secretary of the Interior finds that, for the purpose of encouraging the greatest ultimate recovery of oil or gas and in the interest of conservation of natural resources, it is necessary, in his judgment, to do so in order to promote development, or because the lease cannot be successfully operated under the terms fixed herein.

(e) *Payments.*—Unless otherwise directed by the Secretary of the Interior, to make rental, royalty, or other payments to the lessor, to the order of the Bureau of Land Management at the places mentioned in the regulation 43 CFR 3102.2. If there is no well on the leased lands capable of producing oil or gas in paying quantities, the failure to pay rental on or before the anniversary date shall automatically terminate the lease by operation of law. However, if the time for payment falls on a day in which the proper office to receive payment is closed, payment shall be deemed timely if made on the next official working day.

(f) *Contracts for disposal of products.*—To file with the Oil and Gas Supervisor of the Geological Survey not later than 30 days after the effective date thereof any contract, or evidence of other arrangement, for the sale or disposal of oil, gas, natural gasoline, and other products of the leased land: *Provided,* That nothing in any such contract or other arrangement shall be construed as modifying any of the provisions of this lease, including, but not limited to, provisions relating to gas waste, taking royalty in kind, and the method of computing royalties due as based on a minimum valuation and in accordance with the Oil and Gas Operating Regulations.

(g) *Statements, plats and reports.*—At such times and in such form as the lessor may prescribe, to furnish detailed statements showing the amounts and quality of all products removed and sold from the lease, the proceeds therefrom, and the amount used for production purposes or unavoidably lost; a plat showing development work and improvements on the leased lands, and a report with respect to stockholders, investments, depreciation and costs.

(h) *Well records.*—To keep a daily drilling record, a log, and complete information on all well surveys and tests in form acceptable leased lands, and an acceptable record of all subsurface investigations affecting said lands, and to furnish them, or copies thereof, to the lessor when required. All information obtained under this paragraph, upon the request of lessee, shall not be open to inspection by the public until the expiration of the lease.

(i) *Inspection.*—To keep open at all reasonable times for the inspection of any duly authorized officer of the Department, the leased premises and all wells, improvements, machinery, and fixtures thereon and all books, accounts, maps and records relative to operations and surveys or investigations on the leased lands or under the lease. All information obtained pursuant to any such inspection, upon the request of the lessee, shall not be open to inspection by the public until the expiration of the lease.

(j) *Diligence, prevention of waste, health and safety of workmen.*—To exercise reasonable diligence in drilling and producing the wells herein provided for unless consent to suspend operations temporarily is granted by the lessor; to carry on all operations in accordance with approved methods and practice as provided in the Oil and Gas Operating Regulations, having due regard for the prevention of waste of oil or gas or damage to deposits or formations containing oil, gas, or water or to coal measures or other mineral deposits, for conservation of gas energy, for the preservation and conservation of the property for future productive operations, and for the health and safety of workmen and employees, to plug properly and effectively all wells drilled in accordance with the provisions of this lease or of any prior lease or permit upon which the right to this lease was based before abandoning the same, to carry out at expense of the lessee all reasonable orders of the lessor relative to the matters in this paragraph, and that on failure of the lessee so to do the lessor shall have the right to enter on the property and to accomplish the purpose of such orders at the lessee's cost: *Provided,* That the lessee shall not be held responsible for delays or casualties occasioned by causes beyond lessee's control.

(k) *Taxes and wages, freedom of purchase.*—To pay when due all taxes lawfully assessed and levied under the laws of the State or the United States upon improvements, oil, and gas produced from the lands hereunder, or other rights, property, or assets of the lessee, to accord all workmen and employees complete freedom of purchase, and to pay all wages due workmen and employees at least twice each month in the lawful money of the United States.

(l) *Equal Opportunity clause.*—During the performance of this contract the lessee agrees as follows.

(l) *Equal Opportunity clause* — During the performance of this lease the lessee agrees as follows

(1) The lessee will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The lessee will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The lessee agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this Equal Opportunity clause.

(2) The lessee will, in all solicitations or advertisements for employees placed by or on behalf of the lessee, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(3) The lessee will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the lessee's commitments under this Equal Opportunity clause, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The lessee will comply with all provisions of Executive Order No. 11246 of September 24, 1965, as amended, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The lessee will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, as amended, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the lessee's noncompliance with the Equal Opportunity clause of this contract or with any of the said rules, regulations, or orders, this contract may be cancelled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, as amended, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, as amended, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The lessee will include the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, as amended, so that such provisions will be binding upon each subcontractor or vendor. The lessee will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: *Provided, however,* That in the event the lessee becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the lessee may request the United States to enter into such litigation to protect the interests of the United States.

(n.) *Assignment of oil and gas lease or interest therein.*—As required by applicable law, to file for approval by the lessor any instrument of transfer made of this lease or any interest therein, including assignments of record title, operating agreements and subleases, working or royalty interests, within 90 days from the date of final execution thereof.

(n) *Pipelines to purchase or convey at reasonable rates, and without discrimination.*—If owner, or operator, or owner of a controlling interest in any pipeline or of any company operating the same which may be operated accessible to the oil or gas derived from lands under this lease, to accept and convey and, if a purchaser of such products, to purchase at reasonable rates and without discrimination the oil or gas of the Government or of any citizen or company not the owner of any pipeline, operating a lease or purchasing or selling oil, gas, natural gasoline, or other products under the provisions of the act, or under the provisions of the act of August 7, 1947 (61 Stat. 913, 30 U.S.C. sec. 351).

(o) *Lands patented with oil and gas deposits reserved to the United States.*—To comply with all statutory requirements and regulations thereunder, if the lands embraced herein have been or shall hereafter be disposed of under the laws reserving to the United States the deposits of oil and gas therein, subject to such conditions as are or may hereafter be provided by the laws reserving such oil or gas.

(p) *Reserved or segregated lands.*—If any of the land included in this lease is embraced in a reservation or segregated for any particular purpose, to conduct operations thereunder in conformity with such requirements as may be made by the Director, Bureau of Land Management, for the protection and use of the land for the purpose for which it was reserved or segregated, so far as may be consistent with the use of the land for the purpose of this lease which latter shall be regarded as the dominant use unless otherwise provided herein or separately stipulated.

(q) *Protection of surface, natural resources, and improvements.*—The lessee agrees to take such reasonable steps as may be needed to prevent operations on the leased lands from unnecessarily: (1) causing or contributing to soil erosion or damaging crops, including forage, and timber growth thereon or on Federal or non-Federal lands in the vicinity; (2) polluting air and water; (3) damaging improvements owned by the United States or other parties; or (4) destroying, damaging or removing fossils, total relinquishment or the cancellation or expiration of this lease, or at any other time prior thereto when required and to the extent deemed necessary by the lessor to fill any pits, ditches and other excavations, remove or cover all debris, and so far as reasonably possible, restore the surface of the leased land and access roads to their former condition, including the removal of structures as and if required. The lessor may prescribe the steps to be taken and restoration to be made with respect to the leased lands and improvements thereon whether or not owned by the United States. *Antiquities and objects of historic value.*—When American antiquities or other objects of historic or scientific interest including but not limited to historic or prehistoric ruins, fossils or artifacts are discovered in the performance of this lease, the item(s) or condition(s) will be left intact and immediately brought to the attention of the contracting officer or his authorized representative.

(r) *Overriding royalties.*—Not to create overriding royalties in excess of five percent except as otherwise authorized by the regulations.

(s) *Deliver premises in cases of forfeiture.*—To deliver up to the lessor in good order and condition the land leased including all improvements which are necessary for the preservation of producing wells.

Sec. 3. The lessor reserves:

(a) *Easements and rights of way.*—The right to permit for joint or several use easements or rights of way, including easements in tunnels upon, through, or in the lands leased, occupied, or used as may be necessary or appropriate to the working of the same or of other lands containing the deposits described in the act, and the treatment and shipment of products thereof by or under authority of the Government, its lessees or permittees, and for other public purposes.

(b) *Disposition of surface.*—The right to lease, sell, or otherwise dispose of the surface of the leased lands under existing law or laws hereafter enacted, insofar as said surface is not necessary for the use of the lessee in the extraction and removal of the oil and gas therein, or to dispose of any resource in such lands which will not unreasonably interfere with operations under this lease.

(c) *Monopoly and fair prices.*—Full power and authority to promulgate and enforce all orders necessary to insure the sale of the production of the leased lands to the United States and to the public at reasonable prices, to protect the interests of the United States, to prevent monopoly, and to safeguard the public welfare.

(d) *Helium.*—Pursuant to Section 1 of the act as amended, the ownership of helium and the right to extract or have it extracted from all gas produced under this lease subject to such rules and regulations as shall be prescribed by the Secretary of the Interior. If the lessor elects to take the helium, the lessee shall deliver all or any portion of gas containing the same to the lessor, in the manner required by the lessor, at any point on the leased premises or, if the area is served at the time of production by a gas gathering system owned or operated by the lessee, at any point in that system specified by the lessor, for extraction of the helium by such means as the lessor may provide. The residue shall be returned to the lessee, with no substantial delay in the delivery of the gas produced from the well to the owner or purchaser thereof. Save for the value of the helium extracted, the lessee shall not suffer a diminution of the value of the gas produced from the well, or loss otherwise, including any expense caused solely by the requirement of the delivery of the gas to permit the extraction of helium, for which he is not reasonably compensated. The lessor reserves the right to erect, maintain, and operate any and all reduction works necessary for extraction of helium on the leased premises. The lessee further agrees to include in any contract of sale of gas from the lands subject to this lease provisions setting forth that the lessor owns and reserves the right to extract or have extracted, any helium in the gas sold, and that the lessor may take the gas from a pipeline carrier or any other gas gathering system and extract the helium and return the gas to the owner thereof, without delay other than that caused by the extraction process, save for the value of the helium, the owner shall not suffer any diminution of the value of the gas from which helium has been extracted, or any other loss arising from the extraction of helium, including any expense caused solely by the requirement of the delivery of the gas to permit the extraction of helium, for which he is not reasonably compensated. It is further agreed that any rights reserved vested in the lessor under this paragraph shall also run to any agent or assignee of the lessor or any purchaser of the rights of the lessor.

(e) *Taking of royalties.*—All rights pursuant to section 36 of the act to take royalties in amount or in value of production.

(f) *Casing.*—All rights pursuant to section 40 of the act to purchase casing, and lease or operate valuable water wells.

Sec. 4. *Drilling and producing restrictions.*—It is agreed that the rate of prospecting and developing and the quantity and rate of production from the lands covered by this lease shall be subject to control in the public interest by the Secretary of the Interior, and in the exercise of his judgment the Secretary may take into consideration, among other things, Federal laws, State laws, and regulations issued thereunder, or lawful agreements among operators regulating either drilling or production, or both. After unitization, the Secretary of the Interior, or any person, committee or State or Federal officer or agency so authorized in the unit plan may alter or modify from time to time, the rate of prospecting and development and the quantity and rate of production from the lands covered by this lease.

Sec. 5. *Surrender and termination of lease.*—The lessee may surrender this lease or any legal subdivision thereof by filing in the proper land office a written relinquishment, in triplicate which shall be effective as of the date of filing subject to the continued obligation of the lessee and his surety to make payment of all accrued rentals and royalties and to place all wells on the land to be relinquished in condition for suspension or abandonment in accordance with the applicable lease terms and regulations.

Sec. 6. *Purchase of materials, etc., on termination of lease.*—Upon the expiration of this lease or the earlier termination thereof pursuant to the last preceding section, the lessee shall have the privilege at any time within a period of 90 days thereafter of removing from the premises all machinery, equipment, tools and materials other than improvements needed for producing wells. Any materials, tools, appliances, machinery, structures, and equipment subject to removal as above provided, which are allowed to remain on the leased lands shall become the property of the lessor on expiration of the 90-day period or such extension thereof as may be granted because of adverse climatic conditions throughout said period: *Provided,* That the lessee shall remove any or all of such property where so directed by the lessor.

Sec. 7. *Proceedings in case of default.*—If the lessee shall not comply with any of the provisions of the act or the regulations thereunder or of the lease, or shall make default in the performance or observance of any of the terms hereof (except that of payment of annual rental which results in the automatic termination of the lease), and such default shall continue for a period of 30 days after service of written notice thereof by the lessor, this lease may be canceled by the Secretary of the Interior in accordance with section 31 of the act, except that if this lease covers lands known to contain valuable deposits of oil or gas, the lease may be canceled only by judicial proceedings in the manner provided in section 31 of the act; but this provision shall not be construed to prevent the exercise by the lessor of any legal or equitable remedy which the lessor might otherwise have. Upon cancellation of this lease any casing, material, or equipment determined by the lessor to be necessary for use in plugging or preserving any well drilled on the leased land shall become the property of the lessor. A waiver of any particular cause of cancellation and forfeiture shall not prevent the cancellation and forfeiture of this lease for any other cause of cancellation and forfeiture, or for the same cause occurring at any other time.

Sec. 8. *Heirs and successors-in-interest.*—It is further agreed that each obligation hereunder shall extend to and be binding upon, and every benefit hereof shall inure to, the heirs, executors, administrators, successors, or assigns of the respective parties hereto.

Sec. 9. *Unlawful interest.*—It is also further agreed that no Member of, or Delegate to, Congress, or Resident Commissioner, after his election or appointment, or either before or after he has qualified and during his continuance in office, and that no officer, agent, or employee of the Department of the Interior, except as provided in 43 CFR 7.4(a)(1), shall be admitted to any share or part in this lease or derive any benefit that may arise therefrom; and the provisions of Sec. 3741 of the Revised Statutes of the United States, as amended (41 U.S.C. Sec. 22) and Secs. 431, 432, and 433, Title 18 U.S. Code, relating to contracts, enter into and form a part of this

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SURFACE DISTURBANCE STIPULATIONS

District Supervisor
U.S. Geological Survey
P. O. Box 2550
Billings, MT 59103

Phone: (406) 657-6367

Management Agency *(name)*	Address *(include zip code)*
District Ranger Rocky Mountain Ranger District Lewis & Clark National Forest	Box 340 Chouteau, MT 59422

1. Notwithstanding any provision of this lease to the contrary, any drilling, construction, or other operation on the leased lands that will disturb the surface thereof or otherwise affect the environment, hereinafter called "surface disturbing operation," conducted by lessee shall be subject, as set forth in this stipulation, to prior approval of such operation by the Area Oil and Gas Supervisor in consultation with appropriate surface management agency and to such reasonable conditions, not inconsistent with the purposes for which this lease is issued, as the Supervisor may require to protect the surface of the leased lands and the environment.

2. Prior to entry upon the land or the disturbance of the surface thereof for drilling or other purposes, lessee shall submit for approval two (2) copies of a map and explanation of the nature of the anticipated activity and surface disturbance to the District Engineer or Area Oil and Gas Supervisor, as appropriate, and will also furnish the appropriate surface management agency named above, with a copy of such map and explanation.

An environmental analysis will be made by the Geological Survey in consultation with the appropriate surface management agency for the purpose of assuring proper protection of the surface, the natural resources, the environment, existing improvements, and for assuring timely reclamation of disturbed lands.

3. Upon completion of said environmental analysis, the District Engineer or Area Oil and Gas Supervisor, as appropriate, shall notify lessee of the conditions, if any, to which the proposed surface disturbing operations will be subject.

Said conditions may relate to any of the following:

(a) Location of drilling or other exploratory or developmental operations or the manner in which they are to be conducted;

(b) Types of vehicles that may be used and areas in which they may be used; and

(c) Manner or location in which improvements such as roads, buildings, pipelines, or other improvements are to be constructed.

Form 3109-5 (August 1973)

Form 3109–3
(June 1971)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

STIPULATION FOR LANDS UNDER JURISDICTION OF DEPARTMENT OF AGRICULTURE*

The lands embraced in this lease or permit being under the jurisdiction of the Secretary of Agriculture, the lessee or permittee hereby agrees:

(1) To conduct all operations authorized by this lease or permit with due regard for good land management, not to cut or destroy timber without first obtaining permission from the authorized representative of the Secretary of Agriculture, and to pay for all such timber cut or destroyed at the rates prescribed by such representative; to avoid unnecessary damage to improvements, timber, crops, or other cover; unless otherwise authorized by the Secretary of Agriculture, not to drill any well, carry on operations, make excavations, construct tunnels, drill, or otherwise disturb the surface of the lands within 200 feet of any building standing on the lands and whenever required, in writing, by the authorized representative of the Secretary of Agriculture to fence or fill all sump holes, ditches, and other excavations, remove or cover all debris, and so far as reasonably possible, restore the surface of the lands to their former condition, including the removal of structures as and if required, and when required by such representative to bury all pipelines below plow depth.

(2) To do all in his power to prevent and suppress forest, brush, or grass fires on the lands and in their vicinity, and to require his employees, contractors, subcontractors, and employees of contractors or subcontractors to do likewise. Unless prevented by circumstances over which he has no control, the lessee or permittee shall place his employees, contractors, subcontractors, and employees of contractors and subcontractors employed on the lands at the disposal of any authorized officer of the Department of Agriculture for the purpose of fighting forest, brush, or grass fires on or originating on the lands or on adjacent areas or caused by the negligence of the lessee or permittee or his employees, contractors, subcontractors and employees of contractors and subcontractors, with the understanding that payment for such services shall be made at rates to be determined by the authorized representative of the Secretary of Agriculture, which rates shall not be less than the current rates of pay prevailing in the vicinity for services of a similar character: *Provided*, that if the lessee or permittee, his employees, contractors, subcontractors, or employees of contractors or subcontractors, caused or could have prevented the origin or spread of said fire or fires, no payment shall be made for services so rendered.

During periods of serious fire danger to forest, brush, or grass, as may be specified by the authorized representative of the Secretary of Agriculture, the lessee or permittee shall prohibit smoking and the building of camp and lunch fires by his employees, contractors, subcontractors, and employees of contractors or subcontractors within the area involved except at established camps, and shall enforce this prohibition by all means within his power: *Provided*, that the authorized representative of the Secretary of Agriculture may designate safe places where, after all inflammable material has been cleared away, campfires may be built for the purpose of heating lunches and where, at the option of the lessee or permittee, smoking may be permitted.

The lessee or permittee shall not burn rubbish, trash, or other inflammable materials *except* with the consent of the authorized representative of the Secretary of Agriculture and shall not use explosives in such a manner as to scatter inflammable materials on the surface of the lands during the forest, brush, or grass fire season, *except* as authorized to do so or on areas approved by such representative.

The lessee or permittee shall build or construct such fire lines or do such clearing on the lands as the authorized representative of the Secretary of Agriculture decides is essential for forest, brush, and grass fire prevention which is or may be necessitated by the exercise of the privileges authorized by this lease or permit, and shall maintain such fire tools at his headquarters or at the appropriate location on the lands as are deemed necessary by such representative.

---

* This form of stipulation may be used in connection with leases and permits issued under the Acts of February 25, 1920, as amended (30 U.S.C. 181 *et seq.*); August 7, 1947 (30 U.S.C. 351 *et seq.*); February 7, 1927, as amended (30 U.S.C. 281 *et seq.*); April 17, 1926, as amended (30 U.S.C. 271 *et seq.*); June 28, 1944 (58 Stat. 483–485); September 1, 1949 (30 U.S.C. 192c); June 30, 1950 (16 U.S.C. 508b); or under the authority of any of the Acts cited in Section 402 of the President's Reorganization Plan No. 3 of 1946 (5 U.S.C. 133y–16, Note).

(3) In the location, design, construction, and maintenance of all authorized works, buildings, plants, waterways, roads, telegraph or telephone lines, pipelines, reservoirs, tanks, pumping stations, or other structures or clearance, the lessee or permittee shall do all things reasonably necessary to prevent or reduce to the fullest extent scarring and erosion of the lands, pollution of the water resources and any damage to the watershed. Where construction, operation, or maintenance of any of the facilities on or connected with this lease or permit causes damage to the watershed or pollution of the water resources, the lessee or permittee agrees to repair such damage and to take such corrective measures to prevent further pollution or damage to the watershed as are deemed necessary by the authorized representative of the Secretary of Agriculture.

(4) If in the opinion of the authorized representative of the Secretary of Agriculture, the lands are valuable for watershed protection, the lessee or permittee shall provide for control of surface runoff and return the affected area to as productive condition as practicable.

(5) To pay the lessor or permitter or his tenant or the surface owner or his tenant, as the case may be, for any and all damage to or destruction of property caused by the lessee's or permittee's operations hereunder; to save and hold the lessor or permitter or the surface owner or their tenants harmless from all damage or claims for damage to persons or property resulting from the lessee's or permittee's operations under this lease or permit.

(6) To recognize existing uses and commitments, in the form of Department of Agriculture grazing, timber cutting, and special use permits, water developments, ditch, road, trail, pipeline, telephone line, and fence rights-of-way and other similar improvements, and to conduct his operations so as to interfere as little as possible with the rights and privileges granted by these permits or with other existing uses.

(7) To install and maintain cattle guards to prevent the passage of livestock in any openings made in fences by the lessee or permittee or his contractors to provide access to the lands covered by this lease or permit for automotive and other equipment.

(8) If lessee or permittee shall construct any camp on the lands, such camp shall be located at a place approved by the authorized representative of the Secretary of Agriculture, and such representative shall have authority to require that such camp be kept in a neat and sanitary condition.

(9) To comply with all federally-approved rules and regulations of the Secretary of Health, Education, and Welfare governing the emission of pollutants into the air from activities which are embraced in this lease or permit.

(10) To comply with all the rules and regulations of the Secretary of Agriculture governing the national forests or other lands under his jurisdiction which are embraced in this lease or permit.

(11) Unless otherwise authorized, prior to the beginning of operations to appoint and maintain at all times during the term of this lease or permit a local agent upon whom may be served written orders or notices respecting matters contained in this stipulation, and to inform the authorized representative of the Secretary of Agriculture, in writing, of the name and address of such agent. If a substitute agent is appointed, the lessee or permittee shall immediately so inform the said representative.

(12) To address all matters relating to this stipulation
to District Ranger
Rocky Mountain Ranger District
at Lewis & Clark National Forest
Box 340
Chouteau, MT 59422

who is the authorized representative of the Secretary of Agriculture, or to such other representative as may from time to time, be designated, provided that such designation shall be in writing and be delivered to the lessee or permittee or his agent.

(Signature of Lessee)

GPO 850-292

UNITED STATES DEPARTMENT OF THE INTERIOR
Bureau of Land Management

M 53323
(Serial Number)

OIL AND GAS LEASE STIPULATIONS

CULTURAL AND PALEONTOLOGICAL RESOURCES — The Federal surface management agency is responsible for assuring that the leased lands are examined to determine if cultural resources are present and to specify mitigation measures. Prior to undertaking any surface-disturbing activities on the lands covered by this lease, the lessee or operator, unless notified to the contrary by the authorized officer of the surface management agency, shall:

1. Engage the services of a qualified cultural resource specialist acceptable to the Federal surface management agency to conduct an intensive inventory for evidence of cultural resource values;
2. Submit a report acceptable to the authorized officer of the surface management agency and the District Engineer, Geological Survey; and
3. Implement mitigation measures required by the surface management agency to preserve or avoid destruction of cultural resource values. Mitigation may include relocation of proposed facilities, testing and salvage or other protective measures. All costs of the inventory and mitigation will be borne by the lessee or operator, and all data and materials salvaged will remain under the jurisdiction of the U.S. Government as appropriate.

The lessee or operator shall immediately bring to the attention of the District Engineer, Geological Survey, or the authorized officer of the Federal surface management agency any cultural or paleontological resources or any other objects of scientific interest discovered as a result of surface operations under this lease, and shall leave such discoveries intact until directed to proceed by the District Engineer, Geological Survey.

ENDANGERED OR THREATENED SPECIES — The Federal surface management agency is responsible for assuring that the leased land is examined prior to undertaking any surface-disturbing activities to determine effects upon any plant or animal species, listed or proposed for listing as endangered or threatened, or their habitats. The findings of this examination may result in some restrictions to the operator's plans or even disallow use and occupancy that would be in violation of the Endangered Species Act of 1973 by detrimentally affecting endangered or threatened species or their habitats.

The lessee/operator may, unless notified by the authorized officer of the surface management agency that the examination is not necessary, conduct the examination on the leased lands at his discretion and cost. This examination must be done by or under the supervision of a qualified resources specialist approved by the surface management agency. An acceptable report must be provided to the surface management agency identifying the anticipated effects of a proposed action on endangered or threatened species or their habitats.

ESTHETICS — To maintain esthetic values, all surface-disturbing activities, semipermanent and permanent facilities may require special design including location, painting and camouflage to blend with the natural surroundings and meet the intent of the visual quality objectives of the Federal surface management agency.

EROSION CONTROL — Surface disturbing activities may be prohibited during muddy and/or wet soil periods. This limitation does not apply to operation and maintenance of producing wells using authorized roads.

CONTROLLED OR LIMITED SURFACE USE STIPULATION — This stipulation may be modified by special stipulations which are hereto attached or when specifically approved in writing by the District Engineer, Geological Survey, with concurrence of the Federal surface management agency. Distances and/or time periods may be made less restrictive depending on the actual onground conditions. The prospective lessee should contact the Federal surface management agency for more specific locations and information regarding the restrictive nature of this stipulation.

The lessee/operator is given notice that the lands within this lease may include special areas and that such areas may contain special values, may be needed for special purposes, or may require special attention to prevent damage to surface and/or other resources. Possible special areas are identified below. Any surface use or occupancy within such special areas will be strictly controlled or, if absolutely necessary, excluded. Use or occupancy will be restricted only when the Geological Survey and/or the surface management agency demonstrates the restriction necessary for the protection of such special areas and existing or planned uses. Appropriate modifications to imposed restrictions will be made for the maintenance and operations of producing oil and gas wells.

After the Federal surface management agency has been advised of specific proposed surface use or occupancy on the leased lands, and on request of the lessee/operator, the Agency will furnish further data on any special areas which may include:

100 feet from the edge of the rights-of-way from highways, designated county roads and appropriate federally owned or controlled roads and recreation trails.

500 feet, or when necessary, within the 25-year flood plain from reservoirs, lakes, and ponds and intermittent, ephemeral or small perennial streams; 1,000 feet, or when necessary, within the 100-year flood plain from larger perennial streams, rivers, and domestic water supplies.

500 feet from grouse strutting grounds. Special care to avoid nesting areas associated with strutting grounds will be necessary during the period from March 1 to June 30. One-fourth mile from identified essential habitat of state and federal sensitive species. Crucial wildlife winter ranges during the period from December 1 to May 15, and in elk calving areas, during the period from May 1 to June 30.

300 feet from occupied buildings, developed recreational areas, undeveloped recreational areas receiving concentrated public use and sites eligible for or designated as National Register sites.

Seasonal road closures, roads for special uses, specified roads during heavy traffic periods and on areas having restrictive off-road vehicle designations.

On slopes over 30 percent, or 20 percent on extremely erodable or slumping soils.

Date

Lessee's Signature

MT 3109-1 (December 1981)
Formerly MSO 3100-47c

UNITED STATES DEPARTMENT OF THE INTERIOR
Bureau of Land Management

(OG Sim. Serial No.)

M 53323
(Serial No.)

LIMITED SURFACE USE STIPULATION

The lessee is given notice that all or portions of the lease area contain special values, are needed for special purposes, or require special attention to prevent damage to surface resources. Any surface use or occupancy within such areas will be strictly controlled. Use or occupancy will be authorized only when the lessee/operator demonstrates that the area is essential for operations and when the lessee/operator submits a surface use and operations plan, which is satisfactory to the Geological Survey and the Federal Surface Management Agency (SMA), for the protection of these special values and existing or planned uses. Appropriate modifications to the imposed restrictions will be made for the maintenance and operation of producing oil and gas wells. After the SMA has been advised of the proposed surface use or occupancy on those lands, and on request of the lessee/operator, the SMA will furnish further data on such areas, which now include but are not limited to:

T.30N., R.13W., P.M.M. (57%)

Sec. 26: portions of N½, portions of N½S½, portion of SE¼SW¼
Sec. 27: N½N½, portion of SW¼NE¼, SE¼NE¼, SW¼NW¼, portions of SE¼NW¼, portion of SW¼, portion of N½SE¼, SW¼SE¼
Sec. 28: portion of N½ less 904949, 801605, portions of E½SW¼, W½SW¼, portion of SE¼
Sec. 29: All excluding lands within Glacier National Park and 801605
Sec. 30: All excluding lands within Glacier National Park.
Sec. 31: All excluding lands within Glacier National Park.
Sec. 32: All
Sec. 33: portions of NE¼, portions of E½NW¼, W½NW¼, SW¼, portion of N½SE¼, SW¼SE¼, portion of SE¼SE¼
Sec. 34: portion of N½NW¼, portion of SW¼NW¼, portion of SW¼, portion of N½SE¼, portion of SW¼SE¼
Sec. 35: portion of NE¼NE¼, portion of N½NW¼
Sec. 36: portion of E½NE¼, portion of NW¼NW¼

Reason for Restriction: Landtypes 177, 25A, 25B, 22, moderate potential for cutslope failure hazard, Appendix D, Environmental Assessment Oil and Gas Leasing Nonwilderness Lands

Duration of Restriction: (designate months)

All year

Prior to acceptance of this stipulation, the prospective lessee is encouraged to contact the SMA for further information regarding the restrictive nature of this stipulation.

Date

Signature

MSO 3100-60 (October 1980)

UNITED STATES DEPARTMENT OF THE INTERIOR
Bureau of Land Management

M 53323
(Serial No.)

ACTIVITY COORDINATION STIPULATION

This stipulation may be modified when specifically approved in writing by the District Engineer, Geological Survey with concurrence of the authorized officer of the surface management agency.

(X) This lease includes lands within occupied threatened and endangered species habitat, grizzly bear and gray wolf which has resource values sensitive to high levels of activity. In order to minumize impacts to these resources, special conditions, such as unitization prior to approval of operations, and/or other limitations to spread surface disturbance activities over time and space may be required prior to approval and commencement of any operations on the lease.

% of Lease (100)

Date

Signature

MSO 3100-61 (October 1980)

UI STATES DEPARTMENT OF THE INTE
Bureau of Land Management

Serial No. M 53323

Oil & Gas Lease Stipulations

The following stipulations may be modified when specifically approved in writing by the District Engineer, U.S. Geological Survey with the concurrence of the authorized officer of the surface management agency.

No Surface Occupancy Stipulation

% of Lea

X) No occupancy or other activity on the surface of the following described lands is allowed under this lease: (18)

(a) T.30N., R.13W., P.M.M.
Sec. 26: portions of SW¼, portions of N½SE¼, S½SE¼
Sec. 27: portions of S½NE¼, portions of SE¼NW¼, portions of N½SE¼, SE¼SE¼
Sec. 34: E½NE¼, portions of W½NE¼, portions of NE¼NW¼, portions of N½SE¼
(b) Sec. 35: portions of NE¼NE¼, W½NE¼, SE¼NE¼, portions of N½NW¼, S½NW¼, portions of N½S½
Sec. 36: portions of E½NE¼, NW¼NE¼, portions of SW¼NE¼, E½NW¼, portions of NW¼NW¼, SW¼NW¼

Reasons for this restriction are:
(a) Landtype 181, slopes greater than 60%
(b)

Surface Occupancy Restriction Stipulation (by location)

% of Lea

X) No surface occupancy will be allowed within: (<1)

400 feet of Summit Campground located within:

T.30N., R.13W., P.M.M.
Sec. 31: portions of S½NW¼ excluding lands within Glacier National Park, portions of N½SW¼

50 feet of Summit Trail located within:

T.30N., R.13W., P.M.M.
Sec. 31: portions of SW¼

_____ feet of _____ located within

_____ feet of _____ located within:

This area contains approximately _____ total acres

Surface Occupancy Restriction Stipulation (timing)

% of Lea

X) (a) In order to (~~minimize~~) (protect) elk winter range (48)
occupancy will be allowed only during: 5/1 to 12/1

(b) In order to (minimize) (protect) _____
_____ will be allowed only during: _____

This does not apply to maintenance and operation of producing wells and facilities. Lands within the leased area to which this stipulation applies are described as follows:

(a) T.30N., R.13W., P.M.M.
Sec. 26: All
Sec. 27: All
Sec. 28: portions of N½ less 904949, 801605, E½SW¼, SE¼
(b) Sec. 33: NE¼, portions of E½NW¼, portions of SE¼
Sec. 34: portions of N½N½, portions of SW¼NW¼, SW¼, portions of S½SE¼
Sec. 35: N½N½, portions of S½N½, portions of SW¼SW¼ Sec. 36: N½, portions of N½S½

Road Use Stipulation

% of Lea

) The _____ ( )
will not be used as an access road for activities on this lease except as follows:

Date

Signature

United States Department of the Interior
Bureau of Land Management
222 North 32nd Street
Billings, Montana 59107

ADDITION TO LEASE TERMS

1. Due to the enactment of Public Law 97-78, signed by the President November 16, 1981, this lease contains an additional term specifying the rights and obligations of an oil and gas lease issued subsequent to that Act. This term merely specifies what the impact of passage of that Act has done to a Federal oil and gas lease issued on or after November 16, 1981. The additional lease term is as follows:

   Under the provisions of Public Law 97-78, this lease includes all deposits of non-gaseous hydrocarbon substances other than coal, oil shale, or gilsonite (including all vein-type solid hydrocarbons). Development by methods not conventionally used for oil and gas extraction such as fire, flooding and including surface mining will require the lessee to submit a plan of operations and will be subject to regulations governing development by such methods when those rules are issued by the Bureau of Land Management (BLM), the USGS, and the rules or procedures of the surface managing agency, if other than BLM. Development may proceed only if the plan of operations is approved.

---

2. This lease is issued pursuant and subject to the terms and provisions of Section 302 of the Department of Energy Organization Act (42 U.S.C. 7152) and to the regulations of the Secretary of Energy promulgated thereunder relating to the:

   (1) fostering of competition for Federal leases (including but not limited to, prohibition on bidding for development rights by certain types of joint ventures);

   (2) implementation of alternative bidding systems authorized for the award of Federal leases;

   (3) establishment of diligence requirements for operations conducted on Federal leases (including, but not limited to, procedures relating to the granting or ordering by the Secretary of the Interior of suspension of operations or production as they relate to such requirements);

   (4) setting rates of production for Federal leases; and

   (5) specifying the procedures, terms, and conditions for the acquisition and disposition of Federal royalty interests taken in kind.

APPENDIX B

APPLICATIONS FOR PERMIT TO DRILL (APD)

- Chevron's Surface Use Plan and Hydrogen Sulfide Contingency Plan Page B-1
- Fina's Surface Use Plan and Hydrogen Sulfide Contingency Plan Page B-35

NOTE TO READER:

A surface use plan is part of a completed application for permit to drill package as required by Onshore Order No. 1. It has also been referred to as a 13-point plan by the Bureau of Land Management as it requires information that has been divided into thirteen categories. The plan must contain specific information about the proposal; the operator may be required to modify or amend the plan if the original information is not adequate, or the Forest Service may set forth stipulations or conditions of approval as necessary for protection of surface resources.

The surface use plan shall contain a description of the road and drill pad location and construction, methods for containment and disposal of waste material, and other pertinent data as the authorized officer may require. It shall provide for safe operations, adequate protection of surface resources and uses, as well as a description of adequate measures for reclamation of disturbed lands no longer needed for either drilling or subsequent operations.

In preparing the plan, the operator shall use maps, plats and narrative descriptions to convey the information required.

An onsite inspection of the proposal site and access routes is scheduled within 15 days upon receipt of an APD. At an onsite review, the BLM and surface managing agency representatives along with the operator and possibly the operator's archeologist and drilling contractor, make an on-the-ground review of the proposal and discuss aspects of the proposal that may need to be revised or addressed.

The surface use plan and reclamation stipulations shall be developed during the onsite inspection and provided to the operator. These requirements shall be incorporated as conditions of APD approval. This does not, however, preclude the possibility of additional conditions being imposed as a result of the review of the complete application.

In the case of Chevron's application, several changes were made to the surface use plan initially submitted with their application and a Sundry Notice was sent from the company outlining changes to their surface use plan.

Chevron

Chevron U.S.A. Inc.
6400 South Fiddler's Green Circle, Englewood, CO 80111, P. O. Box 599, Denver, CO 80201

G. H. Thomas
Division Production Manager

April 21, 1987

Revised Surface Use Program
Badger Creek Federal 1-35-2D
Pondera County, Montana

Area Manager
Bureau of Land Management
P. O. Drawer 2865
Great Falls, Montana 59403-2865

Attention Mr. Charles E. Laakso

Gentlemen:

Attached is a Form 9-331, Sundry Notices and Reports On Wells, submitted for your approval of our revised Surface Use Program. The Surface Use Program has been revised to accurately describe our surface use practices.

If you have any questions, please contact Mr. O. X. Oliveira of this office at (303) 930-3734.

Yours very truly,

OXO:pc
Attachment

cc: Mr. John D. Gorman - USFS, Great Falls, MT
Mr. Norman W. Yogerst - USFS, Missoula, MT

REGION I
MINERALS & GEOLOGY
APR 27 1987

Director
Leasable
Land Law Examiner
Applications Examiner
Computer System Analyst
Computer Assistant
Logistics
[illegible] Assistant
[illegible]
[illegible]
✓ [illegible]
[illegible]
[illegible]
[illegible]

Northern Region — Exploration, Land and Production

Form 9-331
Dec. 1973

Form Approved.
Budget Bureau No. 42-R1424

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9-331-C for such proposals.)

1. oil well ☐ gas well ☒ other

2. NAME OF OPERATOR
Chevron U.S.A. Inc.

3. ADDRESS OF OPERATOR
P. O. Box 599, Denver, CO 80201

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 1927' FNL & 2110' FEL, SW¼NE¼Sec.35
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
M-25173

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME
Badger Creek Federal Unit

8. FARM OR LEASE NAME
Federal

9. WELL NO.
1-35-2D

10. FIELD OR WILDCAT NAME
Badger Creek-Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 35, T29N, R12W

12. COUNTY OR PARISH
Pondera

13. STATE
Montana

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
Ground 6562'

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

	REQUEST FOR APPROVAL TO:	SUBSEQUENT REPORT OF:
TEST WATER SHUT-OFF	☐	☐
FRACTURE TREAT	☐	☐
SHOOT OR ACIDIZE	☐	☐
REPAIR WELL	☐	☐
PULL OR ALTER CASING	☐	☐
MULTIPLE COMPLETE	☐	☐
CHANGE ZONES	☐	☐
ABANDON*	☐	☐

(other) to submit revised Surface Use Plan for proposed well

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

A revised Surface Use Program is submitted to more accurately represent Chevron's surface use practices.

Subsurface Safety Valve: Manu. and Type ______ Set @ ______ Ft.

18. I hereby certify that the foregoing is true and correct

SIGNED Oscar X. Oliveira TITLE Associate Environmental Engineering Specialist DATE 4/22/87

(This space for Federal or State office use)

APPROVED BY ______ TITLE ______ DATE ______
CONDITIONS OF APPROVAL, IF ANY:

SURFACE USE PROGRAM

Chevron U.S.A. Inc.
SW¼ NE¼ Section 35, T29N, R12W

Badger Creek Federal 1-35-2D
Pondera County, Montana

1. Existing Roads

A. The location is in the Lewis and Clark National Forest in Pondera County, Montana approximately 22 miles west southwest of Browning, Montana, as shown by county map (Exhibit E). At the present time there are no roads to the location.

B. Existing trails to Badger Guard Station, as shown on the topographic maps, enter via Palookaville (a name place, not a village); from Marias Pass vicinity up the South Fork Two Medicine River; and, up Badger Creek. The Palookaville route is passable part of the year to 4-wheel drive vehicles when the United States Forest Service (USFS) gates are open. The Badger Creek canyon route is a foot or pack trail. The route of choice follows the South Fork Two Medicine River. This road was washed out several years ago but remains unrepaired and is now used mostly by snowmobilers. Except for the wash outs, the remainder of the road is in usable condition. Access would be from 1/4 mile west of Marias Pass along an existing USFS road for about 1.3 miles, thence for 2.7 miles via the proposed American Petrofina road to a crossing of South Fork Two Medicine River and their proposed gated guard station. Thereafter following a new route northeast of and parallel to the South Fork Two Medicine River bottom (Alternative 1A) to the existing road near the Badger Guard Station, and southward along the North Badger Creek Trail for a total distance of 18.6 miles.

C. The access routes are shown on the maps (Exhibits E and F).

D. Existing roads will be maintained in the same or better condition as is necessary to provide access during drilling and completion operations.

2. Planned Access Road

A. Width: a) American Petrofina/Chevron joint use road is expected to have a 14' crown with 7"-10" gravel surfacing; b) new construction from crossing of South Fork Two Medicine River to proposed well location to have 14' crown, 6' ditch and cut slope as recommended by USFS, and 7"-10" aggregate surfacing as required. Curve widening will be used as necessary on sharp turns or switchbacks to accommodate long, wide loads.

B. Grades: Marias Pass to South Fork Two Medicine River 6.7%; South Fork Two Medicine River to North Badger Creek 2.5% with few local pitches to 5%; and, North Badger Creek to location 6.5%.

C. Turnouts: None

D. Drainage Design: Ditches at base of all cut slopes graded to culverts as required.

E. Bridges, Culverts, Cuts and Fills: Bridge crossings of the South Fork Two Medicine River and North Badger Creek are proposed to be of two span prefabricated steel construction, approximately 60' spans by 14' width. Abutments and piers will be timber construction with gravel fill and utilize steel piling as required for structural support. In addition, sheet piling may be required for pier construction to permit dewatering. Appropriate CMP round or arch culverts will be used at secondary stream crossings and drainage for ditches.

F. Surface Material: Surface material will be obtained from private sources. Application for Federal permit will be made if needed and if a suitable material site is available.

G. A locked gate will be installed near the lower end of the river road. This gate will have a series of locks which is designed to prevent access by those not having valid business on location.

H. The access route from North Badger Creek has been flagged to the drill site. No detailed surveys will be made until all routing has been agreed to by the USFS.

I. Clearing of Access Route and Wellsite: All trees suitable for logs, poles or lumber within construction areas will be identified and marked by the USFS. These will be cut to appropriate lengths, limbed, topped and stacked in mutually agreed upon locations and disposed of later. Brush, limbs and slash are to be piled in specified areas and will be hauled and disposed of later. Trees are to be cut close to the ground as is practical for individual circumstances. Stumpage along road and drill pad is to be rolled off the construction area in either a dispersed manner or concentrated in piles. The choice should be made dependent upon a US Fish and Wildlife Service decision as to which disposal method would become the most productive habitat for small prey of any threatened or endangered species. Where relatively steep hill slopes would create stacking problems, the dispersed methods will be used.

3. Location of Existing Wells Within Two Miles:

None

4. Location of Existing and/or Proposed Facilities:

A. There are no existing facilities in the area.

B. New facilities proposed

1. All production facilities will be located on compacted dirt or cut area of drill pad.

2. A dike will be constructed around the tank site and treater. Construction material for production facilities will be obtained from the site. Any additional materials required will be purchased from a local supplier.

3. Any necessary pits will be fenced to protect livestock and wildlife.

C. Rehabilitation of disturbed areas no longer needed for operations will be accomplished as directed by the USFS.

5. Location and Type of Water Supply:

A. A water well is proposed to be located near the drillsite in NW¼ NE¼, Section 35; where necessary, electric power and heat will be available to maintain continuous operation.

B. If an adequate supply of well water is not found, water will be brought in from the nearest adequate year-round surface water supply.

6. Source of Construction Materials:

A. Gravel, passing 4" mesh, will be placed on location and access road where necessary to a depth of 7"-10".

B. Gravel will be obtained from private sources or, if available, obtained from Federal or Indian lands after acquisition of the appropriate permit(s).

C. Location of off-site material sources are uncertain at this time. Where cuts and fills are necessary, construction design will be near material balances where possible.

D. Existing roads will be utilized to haul construction materials.

E. The drill site area has a scatter of limestone boulders on and near the surface. Those that need to be moved and are of large size will be concentrated in the fill area at the south-east corner of the pad (see Exhibit G). Small boulders will be incorporated in the fill. Where there may be need for the boulders for road construction or drainage control, these will be utilized as needed.

7. Methods of Handling Waste Disposal:

A. Water base mud cuttings will be buried in the reserve pit. A synthetic pit liner, if required, will be folded in on the cuttings for burial.

B. Water based drilling fluids will be contained in the reserve pit and upon completion or abandonment of the well the fluid will be hauled to an approved disposal site.

C. Produced fluids will be collected in a test tank. Oil will not be placed in the reserve pit. Any spills of oil, gas, salt water, or other noxious fluids will be cleaned up immediately and removed.

D. A septic tank will be installed for camp effluent. Effluent will be hauled to an approved disposal site.

E. Garbage and other wastes will be contained in bear-proof containers and hauled to an approved disposal site.

8. Ancillary Facilities:

There will not be an airstrip. The man-camp will be located between 100 yards to ½ mile from the drillsite for safety reasons.

9. Well Site Layout:

Exhibit G shows the drill pad layout. Cuts, fills, tentative reserve pit, and flare pit locations are indicated.

10. Plans for Reclamation of the Surface:

Reclamation of the surface will begin immediately after rig removal and is expected to take approximately 60 days.

A. Topsoil will be stripped and stockpiled. Gravel will be added to the surface if deemed necessary. Any excess cut will be stockpiled in an area separate and away from the topsoil stockpile. Upon well completion, drilling fluids and trash will be trucked to approved disposal areas. Pit areas will be filled and the surface re-contoured as near as possible to the original land form. If production is obtained, the unused pad area will be restored as soon as possible.

B. Revegetation and rehabilitation of the disturbed areas, including access road, will be in accordance with USFS recommendations and guidance.

11. Other Information:

A. The terrain is mountainous. Soil at the drill site appears to be rocky loam formed from limestone derived from the head wall of an abandoned cirque which partly collapsed after the ice field vanished 10,000 to 12,000 years ago.

B. Surface use is presently wildlife habitat, cattle grazing and recreational. All lands are administered by the USFS.

C. The closest named streams are North and South Badger Creek, both about 1.3 miles distance. There is an unnamed spring flow about 0.7 miles north of the drill site. Badger Guard Station is about 2.1

miles north of the site and is sometimes occupied during the summer season.

D. Exhibit I is an itemized list of trucking weights for a drill rig comparable to the size of the rig that will be used to drill this well. This listing is for informational purposes only.

E. The drilling operation is scheduled to begin in the Fall of the year, immediately following road and location construction which is expected to take approximately 18 weeks. The drilling, completion and reclamation work is expected to take approximately 300 days to complete. Workers will be housed at the man-camp. Once drilling begins, traffic to the drill site is expected to be approximately 15 vehicles per day to facilitate the following services:

General Deliveries
Diesel/Propane
Bits
Welder
Mud Loggers
Casing Crews
Mud Deliveries
Salespeople
BOP Testing
Roustabout Crews
Cement
Casing Inspection
Trash/Septic
Water/Food
Drilling Fluids Specialist
Road Maintenance
BHA Inspection
Corrosion Specialist
Wireline Loggers
Casing Loads
Solids Control Maintenance

Exhibit J is an example of wellsite traffic associated with drilling a well where the man-camp is located on or near the drillsite.

F. It is Company policy that Chevron personnel or contractors' employees are not permitted to have alcohol, illegal drugs or other controlled substances, firearms or dogs at the drill site or along the access route during construction, drilling, testing or production of this well.

13. Chevron Representatives and Certification:

B. L. Haynes
Division Drilling Manager
Chevron U.S.A. Inc.
P. O. Box 599
Denver, CO 80201
(303) 930-3403

L. Lee
Drilling Superintendent
Chevron U.S.A. Inc.
P. O. Box 599
Denver, CO 80201
(303) 930-3554

I hereby certify that I, or persons under my direct supervision have inspected the proposed drill site and access route; that I am familiar with the conditions which currently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and that the work associated with operations proposed herein will be performed by Chevron U.S.A. Inc., and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

Date: 4/23/87
Name:
G. H. Thomas
Division Production Manager

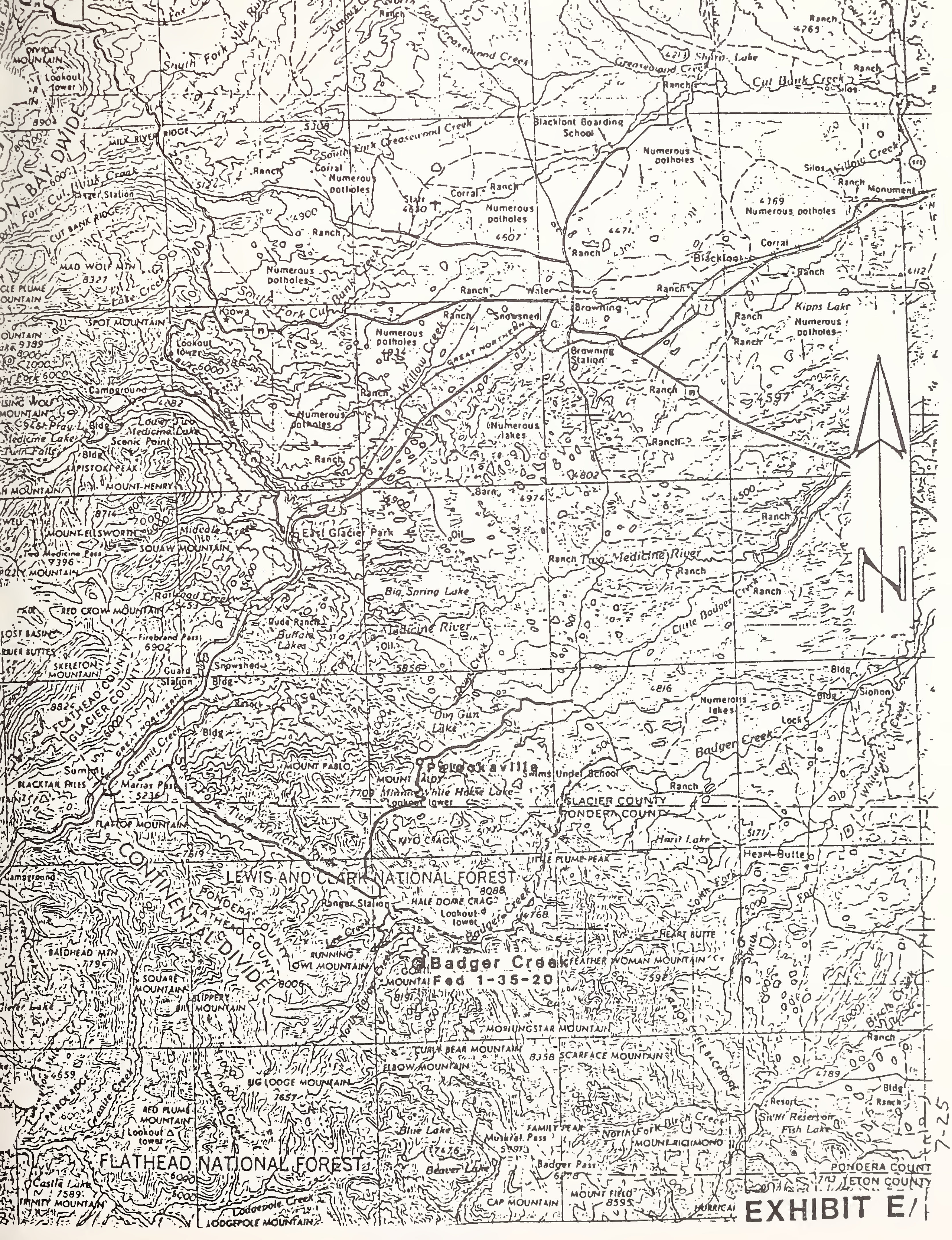
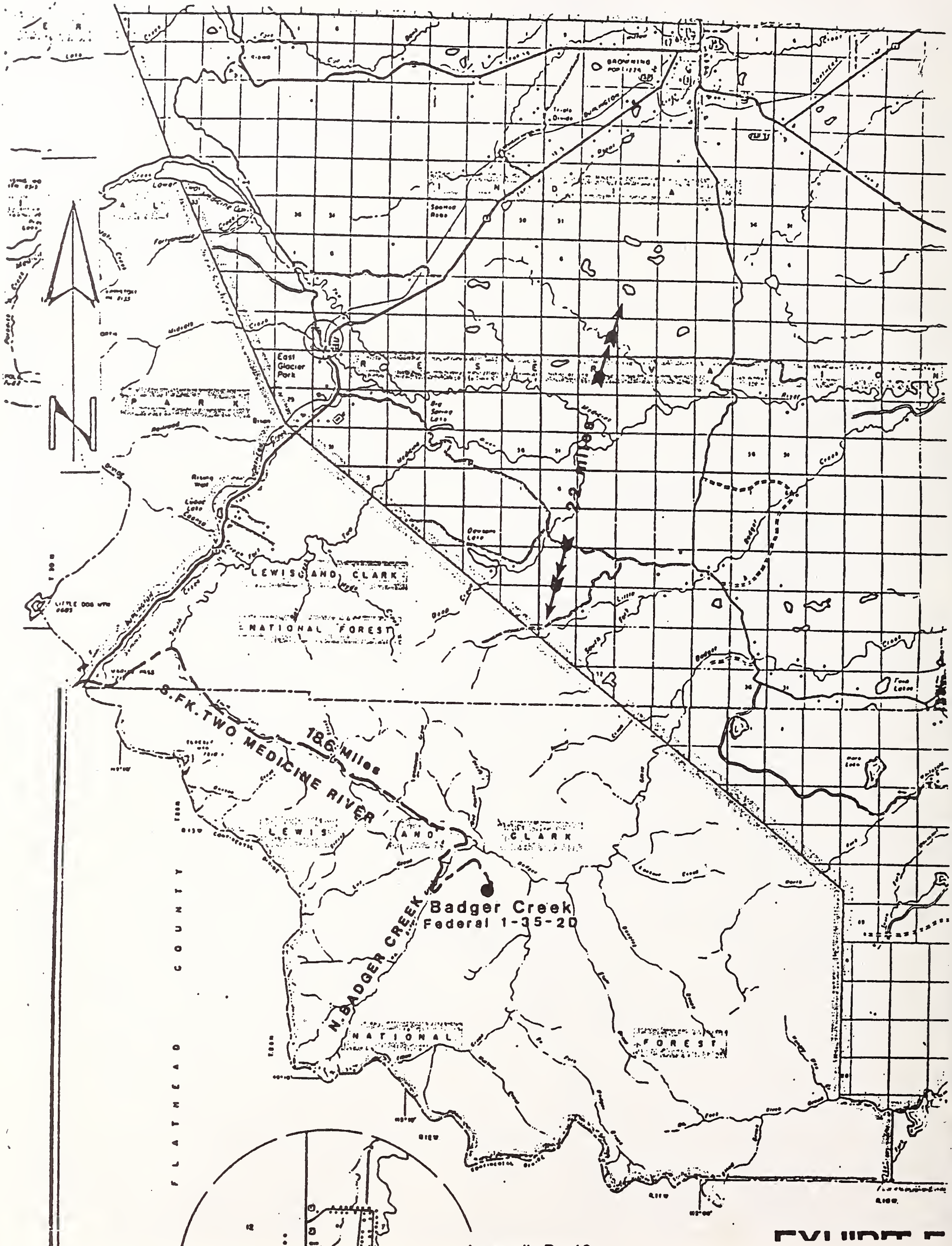


EXHIBIT E/1

7-25



N
Browning
East Glacier Park
P A R K
I N D I A N
R E S E R V A T I O N
22 miles
LEWIS AND CLARK
NATIONAL FOREST
S.FK.TWO MEDICINE RIVER
186 Miles
LEWIS
AND
CLARK
N.BADGER CREEK
Badger Creek
Federal 1-35-2D
NATIONAL
FOREST
FLATHEAD COUNTY
Little Dog Mtn

EXHIBIT F

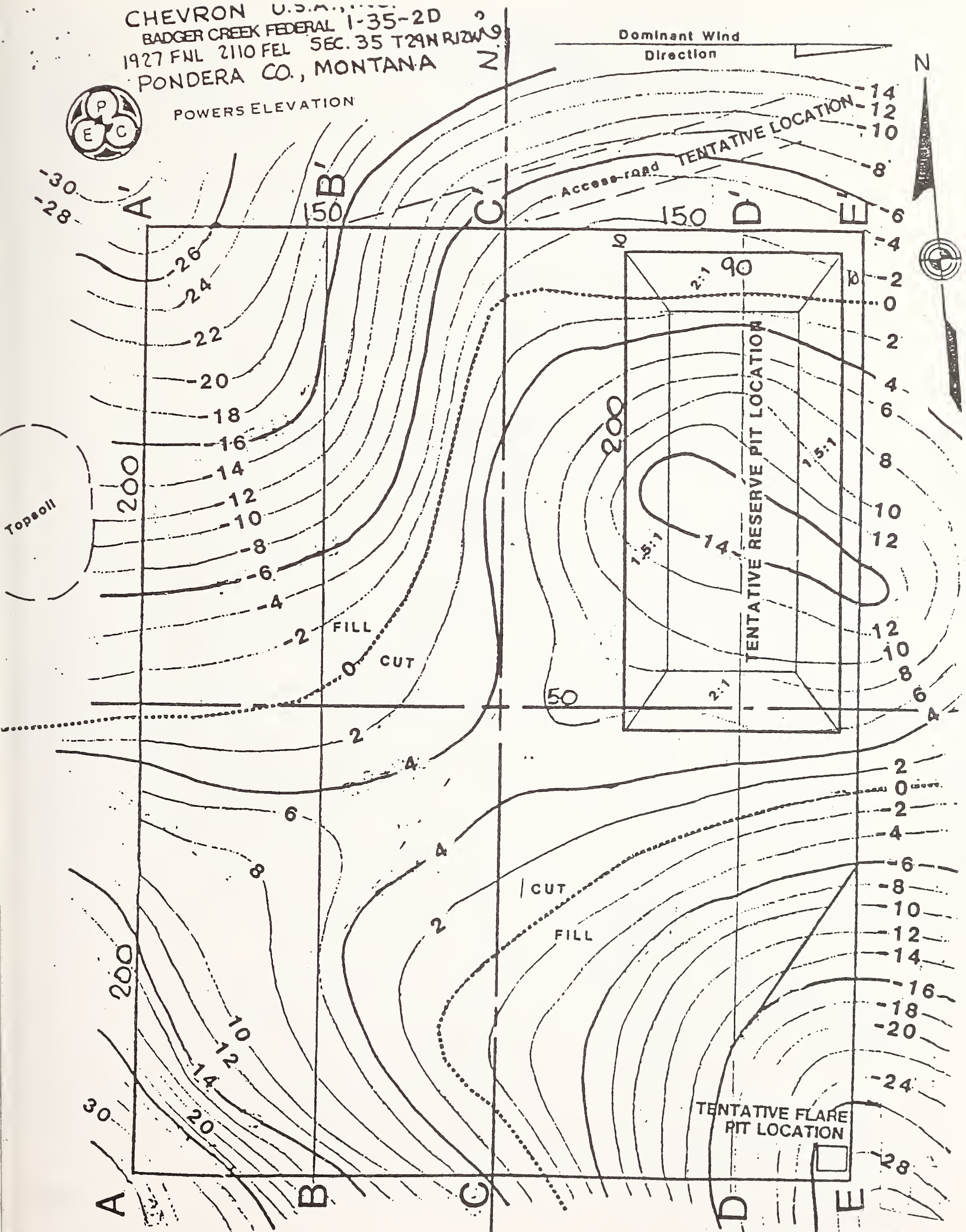
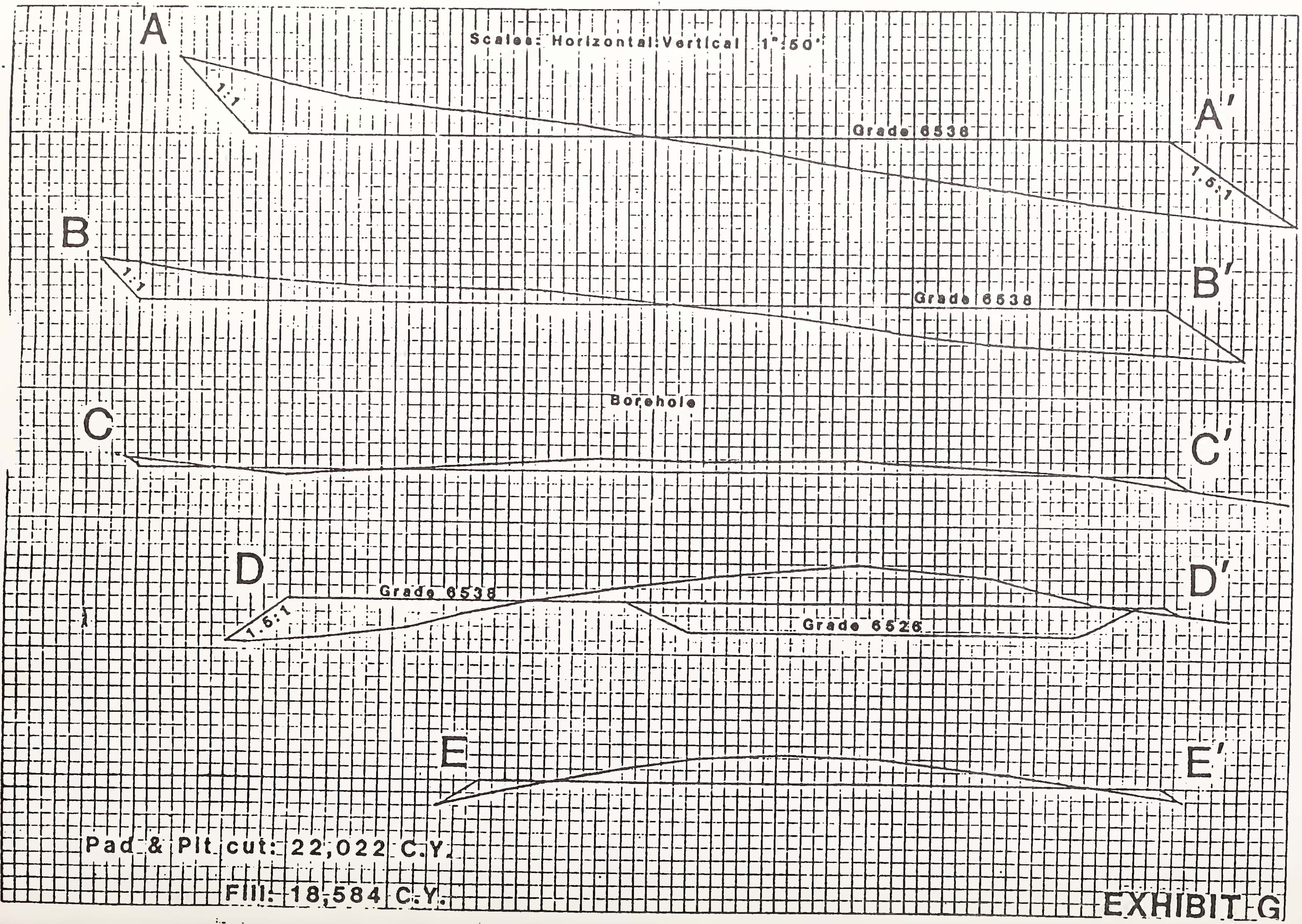

CHEVRON U.S.A.
BADGER CREEK FEDERAL 1-35-2D
1927 FNL 2110 FEL SEC. 35 T29N R12W
PONDERA CO., MONTANA
PEC
POWERS ELEVATION
Dominant Wind Direction
N
Access road
TENTATIVE LOCATION
TENTATIVE RESERVE PIT LOCATION
TENTATIVE FLARE PIT LOCATION
Topsoil
FILL
CUT
A
A'
B
B'
C
C'
D
D'
E
E'
150
150
200
200
200
90
50
10
10
2:1
2:1
1.5:1
1.5:1
-30
-28
-26
-24
-22
-20
-18
-16
-14
-12
-10
-8
-6
-4
-2
0
2
4
6
8
10
12
14
20
30
-14
-12
-10
-8
-6
-4
-2
0
2
4
6
8
10
12
12
10
8
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-24
-28

EXHIBIT G

K+E 10 X 10 TO THE INCH • 7 X 10 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.

46 0703



Scales: Horizontal:Vertical 1":50'

Pad & Pit cut: 22,022 C.Y.

Fill: 18,584 C.Y.

EXHIBIT G

TEXAS
NEW MEXICO
OKLAHOMA
KANSAS
COLORADO
WYOMING
ARIZONA
MISSOURI
ILLINOIS

UTAH
MONTANA
MISSISSIPPI
ALABAMA
ARKANSAS
NEVADA
FLORIDA
LOUISIANA
TENNESSEE

E. L. Farmer & CO
ODESSA, TEXAS
DEPENDABLE TRUCKING

Johnny Hoo
Happy Scott

PERMIT NO'S:
TEXAS R. R. C. 5613
N. M. S. C. C. 705
FED. I. C. C. MC-110817

CARRIER'S NO. 01-02036 N
SHIPPER'S NO.

E. L. FARMER & CO.

From E.L. WOOD #3-29, 9 MILES SOUTHWEST CHICKASHA, OKLA ON US 277, Date 2/20-28/83 19
3 MILES NORTH, ½ MILES EAST ON COUNTY AND LEASE RDS.
At Street, City, County, State

Received, subject to terms and conditions of uniform bill of lading and all other tariff provisions to which carrier is a party in effect on date hereof. the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, which are hereby agreed to by the shipper and accepted for himself and his assigns.

Consigned to MOCCASIN #1, 25 MILES NORTH KILLDEER, NORTH DAKOTA ON ST 22, 4.7 MILES EAST, 9.8 MILES SOUTH, ½ MILES ~~WEST~~ east ON LSE RDS.
(Mail or street address of consignee—For purposes of notification only.)

Destination State County Delivery Address*
(*To be filled in only when shipper desires and governing tariffs provide for delivery thereat.)

Route Vehicle No.

No. Packages	KIND OF PACKAGE, DESCRIPTION OF ARTICLES, SPECIAL MARKS, AND EXCEPTIONS	*Weight (Sub. to Cor.)	Class or Rate	Ck. Col.
	DISMATLE, LOAD AND HAUL RIG #3 AS LISTED (1,103½ MILES)			
	3 LOADS VIA OKLA CITY FOR AUTOS -1142½ MILES.)			
1110/1100	MI-MOTOR (8½' WIDE) SCALE WT	55,580#	6.09	
1110/1100	MI-DRAWWORKS-(13'W) SCALE WT	74,850#	7.20	
1110/1100	MI-MUD PUMP(10½'W) SCALE WT	67,140#	6.65	
10/1100	MI- CONTROL HOUSE (10'W) SCALE WT	43,280#	6.09	
1110/1100	MI-~~DRAW~~-DERRICK SUB STRL(' 9'W) SCALE WT	44,180#	6.09	
1110/1100	MI-DERRICK SUB-ST, HEATERS (9'W) SCALE WT	38,350#	6.23	
1110/1100	MI-FUEL TANK, BOP MUFFLERS (LEGAL) SCALE WT	40820#	5.54	
1110/1100	MI-MUD PIT(11'W) SCALE WT	49,470#	6.65	
1110/1100	MI-#2 MOTOR (10½'W) SCAEE WT	52,320#	6.65	
1110/1100	MI-TOP DOGHOUSE (LEGAL) SCALE WT	36,420#	5.66	
1110/1100	MI-#1 MOTOR (12'W) SCALE WT	46,060#	6.65	
1110/1100	MI-DOGHOUSE STAND, MOTOR SKID&VALVES (9'W) SCALE	45,820#	6.09	
1110/1100	MI-MUD PIT(11½'W) SCALE WT	63,440#	6.65	
1110/1100	MI-MUD HOUSE, ROT. TBLE (9'W) SCALE WT	27,670#		
	CHEAPER AS MIN	30,000#	6.44	
1110/1100	MI-CROWN OF DRK, DRLG LINE(13'W) SCALE WT	45,700#	7.20	
1110/1800	MI MUD PUMP (10½'W) SCALE WT	73,630#	6.65	
1110/1100	MI-BOILER HOUSE(11'W) SCAELWT	41,200#	6.65	
1110/1100	MI MUD PIT(11'W) SCALE WT	52,280#	6.65	

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

If charges are to be prepaid, write or stamp here, "To be Prepaid."

Received $ to apply in prepayment of the charges on the property described hereon.

Agent or Cashier

Per
(The signature here acknowledges only the amount prepaid.)

Charges advanced

$

* If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."
NOTE—Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding
Per

Shipper E. L. FARMER & CO., Agent
Per . Per
Permanent address of Shipper Street City, State

EXHIBIT I

TEXAS
NEW MEXICO
OKLAHOMA
KANSAS
COLORADO
WYOMING
IZONA
SOURI
LLINOIS

UTAH
MONTANA
MISSISSIPPI
ALABAMA
ARKANSAS
NEVADA
FLORIDA
LOUISIANA
TENNESSEE

E.L. Farmer & CO
ODESSA, TEXAS

DEPENDABLE TRUCKING

PAGE#3

PERMIT NO'S:
TEXAS R. R. C. 5613
N. M. S. C. C. 705
FED. I. C. C. MC-110617

CARRIER'S NO. -01-02036

SHIPPER'S NO. ______

E. L. FARMER & CO.

From ______, Date ______ 19____

At ______ Street, ______ City, ______ County, ______ State

Received, subject to terms and conditions of uniform bill of lading and all other tariff provisions to which carrier is a party in effect on date hereof. the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, which are hereby agreed to by the shipper and accepted for himself and his assigns.

Consigned to ______
(Mail or street address of consignee—For purposes of notification only.)

Destination ______ State ______ County ______ Delivery Address* ______
(*To be filled in only when shipper desires and governing tariffs provide for delivery thereat.)

Route ______ Vehicle No. ______

No. Packages	KIND OF PACKAGE, DESCRIPTION OF ARTICLES, SPECIAL MARKS, AND EXCEPTIONS	*Weight (Sub. to Cor.)	Class or Rate	Ck. Col.
	TOTAL PERMITS $ 6144.96			
1110/1100	MI-SUITCASES (10'W) SCALE WT	45,000#	6.09	
1110/1100	MI-WINDWALL RACK, SH.SHKR (12'W) SCALE WT	45,240#	6.65	
1110/1100	MI-CENTERS SUB ST MATTING CATWALK (9'W) SCALE WT	38,000#	6.23	
1110/1100	MI MATTING CATWALK, FL PLATE (9'W) SCALE WT	45,080#	6.09	
1110/1100	MI WINDWALL RACK, BOP (10'W) SCALE WT	28,600#		
	CHEAPER AS MIN	30,000#	6.44	
1110/1100	M-DERRICK LEGS(13½'W) SCALE WT	37,560#	7.36	
1110/1100	MI-PART DRK, PIPE BRD FL. PLATE(11'W) SCALE WT	34,580#	7.02	
1110/1100	MI BOTT. SECT SUB-ST, MISC(10'W) SCALE WT	40,590#	6.09	
1110/1100	MI WATER TANK(11'W) SCALE WT	42,100#	6.65	
1110/1100	MI-PART DRK,MATTING MISC (11'W) SCALE WT	22,880#		
	PER MIT LOAD AS MIN	24,000#	7.69	
1100/1100	MI PART DRK MATTING MISC(11'W) SCAEE WT	2,3720#		
	PERMIT LOAD AS MIN	24,000#	7.69	
1110/1100	MI-BART DRK FL PALTE (10'W) SCALE WT	24,190#	7.05	
1110/1100	MI PART SUB-ST, FUELTANK GRDS (9'W) SCALE WT	48,500#	6.09	
1150/1140	MI 5-6½"DC LOCATION CAR & SUBURBAN (OKLA CITY)			
	SCALE WT	26,040#		
	FULL TRAILER USED 40'X 750# AS MIN	30,000#	6.01	
1150/1140	MI-5-6½" DC (LOCATION) CAR & SUBURBAN(OKLA CITY S			
S	SCALE WT	22,880#		
FULL TRAILER USED 40'X 750#	AS MIN	30,000#	6.01	

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

______
(Signature of Consignor)

If charges are to be prepaid, write or stamp here, "To be Prepaid."

Received $ ______ to apply in prepayment of the charges on the property described hereon.

Agent or Cashier

Per ______
(The signature here acknowledges only the amount prepaid.)

Charges advanced

$ ______

* If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."

NOTE—Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or de d value of the property. The agreed or declared value of the pr is hereby specifically stated by the shipper to be not exceeding

Per

______ Shipper E. L. FARMER & CO., Agent

Per ______ Per

Permanent address of Shipper ______ Street ______ City, ______ State

TEXAS
NEW MEXICO
OKLAHOMA
KANSAS
COLORADO
WYOMING
ZONA
OURI
ILLINOIS

UTAH
MONTANA
MISSISSIPPI
ALABAMA
ARKANSAS
NEVADA
FLORIDA
LOUISIANA
TENNESSEE

E.L. Farmer & CO
ODESSA, TEXAS

DEPENDABLE TRUCKING

PAGE#2

PERMIT NO'S:
TEXAS R. R. C. 5613
N. M. S. C. C. 705
FED. I. C. C. MC-110817

CARRIER'S NO. 01-02036
SHIPPER'S NO. ______

E. L. FARMER & CO.

From ______, Date ______ 19____

At ______ Street, ______ City, ______ County, ______ State

Received, subject to terms and conditions of uniform bill of lading and all other tariff provisions to which carrier is a party in effect on date hereof, the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, which are hereby agreed to by the shipper and accepted for himself and his assigns.

Consigned to ______
(Mail or street address of consignee—For purposes of notification only.)

Destination ______ State ______ County ______ Delivery Address* ______
(*To be filled in only when shipper desires and governing tariffs provide for delivery thereat.)

Route ______ Vehicle No. ______

No. Packages	KIND OF PACKAGE, DESCRIPTION OF ARTICLES, SPECIAL MARKS, AND EXCEPTIONS	*Weight (Sub. to Cor.)	Class or Rate	Ck. Col.
1110/1100	MI-PART SUB ST, SWIVEL(10'W) SCALE WT	45,160#	6.09	
1110/1100	MI-LIGHT PLANT HOUSE (11'W) SCALE WT	68,020#	6.65	
1110/1100	MI-MNKY BRD, CH.MNFLD, STEPS (13'10") SCALE WT	43,640#	7.20	
1110/1100	MI-DRK STD, BLKS HOOK, PIPE BRD (12'W) SCALE WT	45,600#	6.65	
1110/1800	MI BOTTOM SECT. SUB STR (9'W) SCALE WT	32,540#	6.44	
0/1100	MI-PART SUB STR (10'W) SCALE WT	48,370#	6.09	
1110/1100	MI-PART SUB STR, MOTOR SKID (9'W) SCALE WT	40,840#	6.09	
1110/1100	MI MATTING CENTERS SS, MISC(LEGAL) SCALE WT	47,500#	5.54	
1110/1100	MI MATTING SUBS (LEGAL(SCAEE WT	45,040#	5.54	
1110/1100	MI MATTING SUBS,OIL TANK(LEGAL) SCALE WT	29,620#		
	CHEAPER AA MINIMUM	30,000#	5.85	
1110/1100	MI-MATTING V-DR, SUB GNTRS MISC (LEGAL) SCALE WT	27,050#	6.41	
1110/1100	MI-JUNK RACK (9'W) SCALE WT	31,960#	6.44	
1110/1100	MI-7-8½" DR. CLRS, BOP SUB, MISC(LEGAL) SCALE WT	44,140#		
	CALCULATED DRILL COLLAR WEIGHT	20,160#	4.62	
	BALANCE SCALE WT	23,980#	5.54	
1150/1140	MI-5-6½" DC(LOCATION) CAR (OK. CITY)LEGAL)			
	SCALE WT	34,580#	6.01	
1110/1100	MI-6-8" DR. CLRS, KELLY PIPE RKS MISC SCALE WT	48,140#		
	CALCUATED DRILL COLLAR WT	27,720#	4.62	
	BALANCE SCALE WT	20,420#	5.54	

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

______
(Signature of Consignor)

If charges are to be prepaid, write or stamp here, "To be Prepaid."

Received $______ to apply in prepayment of the charges on the property described hereon.

Agent or Cashier

Per ______
(The signature here acknowledges only the amount prepaid.)

Charges advanced

$ ______

* If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."

NOTE—Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding ______ Per ______

______ Shipper

E. L. FARMER & CO., Agent

Per ______

Per ______

Permanent address of Shipper ______ Street ______ City, ______ State

CHEVRON USA INC.
CABIN CREEK UNIT #31-33C
November 1985 Traffic

				SERVICE COMPANIES			
DATE	PARKER DRILLING	CHEVRON	FEDS	CSG	RD. MTNCE	HALIB.	OTHER
1	1						13
2	6	2			2		11
3							4
4	1				2		13
5	16	4	1				12
6	3						6
7	3				2		9
8	1	2			1		12
9		1					5
10	2	1					7
11	10				1		14
12		4	1		1		7
13		1			2		10
14	2		1		4		10
15		2	1		1		12
16					1		6
17	9				2		9
18	3	1			1	4	11
19		4			1		9
20	1	1			2	2	10
21	1	3		2	4	7	10
22	2			3	2	2	11
23	10	2		1	4	3	12
24				3	4	2	13
25		1	1		5	8	16
26	3	2	1		4		9
27	1				6		22
28	1	1					7
29	12				1		15
30	2				2		5

EXHIBIT J

CHEVRON USA INC.
CABIN CREEK UNIT #31-33C
January 1986 Traffic

DATE	PARKER DRILLING	CHEVRON	FEDS	SERVICE COMPANIES			
				CSG	RD. MTNCE	HALIB.	OTHER
1					2		4
2	1		1		1		16
3	3		1		4		7
4	10	1			3		10
5	1				3		10
6					4		14
7	1	7			5	1	13
8	2	3			5	1	14
9		3	1	3	3	11	16
10	10			1	1	4	6
11	1				2	2	11
12					1	2	5
13	1			1	6	1	18
14	3	1			5		16
15	2	3		2	8		13
16	10				2	2	16
17	1				2	2	17
18	3	1			6	1	12
19	5	1			4	2	9
20	2	6			5	4	20
21	4	5			6	3	8
22	11	2			4		12
23	1	1			2		8
24	2	2		2		1	17
25	2			1	1	2	16
26	1			1	4	3	9
27				4	2		28
28	10	2			2		20
29	1		1		5		18
30		1			6	2	12
31	2	1			2	13	10

Chevron

Chevron U.S.A. Inc.
6400 South Fiddler's Green Circle, Englewood, CO 80111, P. O. Box 599, Denver, CO 80201

G. H. Thomas
Division Production Manager

March 16, 1987

Revised Hydrogen Sulfide
Contingency Plan
Badger Creek Federal 1-35-2D
Pondera County, Montana

Bureau of Land Management
P. O. Drawer 2865
Great Falls, MT 59403-2865

Attention Mr. Charles E. Laakso

Gentlemen:

The attached Hydrogen Sulfide Contingency Plan has been revised to more adequately represent our actions in the event hydrogen sulfide gas is encountered while drilling.

If you have any questions, please contact Mr. O. X. Oliveira of this office at (303) 930-3734.

Yours very truly,

GHThomas

OXO:maw
Attachment
cc: Mr. John D. Gorman - USFS, Great Falls, MT
Mr. Norman W. Yogerst - USFS, Missoula, MT

REGION I
MINERALS & GEOLOGY
MAR 23 1987

Director
Leasable
Land Law Examiner
Applications Examiner
Computer System Analyst
Computer Assistant
Locatable
Mining Assistant
Resource Geologist
Program Coordinator
✓ Economist
Soil Scientist
Program Assistant
Secretary
Clerk-Typist
File

Northern Region — Exploration, Land and Production

HYDROGEN SULFIDE
CONTINGENCY PLAN
FOR
CHEVRON U.S.A. INC.

BADGER CREEK FEDERAL 1-35-2D

PONDERA COUNTY, MONTANA

MARCH 13, 1987

TABLE OF CONTENTS

Page No.

I. PURPOSE 1

II. GENERAL INFORMATION & PHYSIOLOGICAL REPONSES TO H_2S EXPOSURE . . 1

III. SPECIAL HEALTH PROBLEMS 2

IV. SPECIAL PROBLEMS IN RESPIRATOR USE 2

V. TREATMENT PROCEDURES FOR H_2S POISONING 3

VI. RESPONSIBILITIES 3

VII. WELLSITE PROCEDURES & PRECAUTIONS 4

VIII. PROTECTION AND EVACUATION OF THE GENERAL PUBLIC 8

IX. TELEPHONE NUMBERS 10

X. MAP OF AREA 12

XI. CONVERSION FACTORS FOR H_2S 13

XII. API RECOMMENDED PRACTICE FOR SAFE DRILLING OF WELLS CONTAINING HYDROGEN SULFIDE 14

I. PURPOSE

The purpose of this plan is to safeguard the lives of Company, contract personnel and the general public in the event of equipment failures and/or disaster occasioned by the drilling of formations which may contain H_2S (Hydrogen Sulfide) and CO_2 (Carbon Dioxide).

Chevron U.S.A. Inc. has inaugurated practices and specified materials to be used in drilling of wells to insure the safety of all personnel and the general public within the bounds of current knowledge and equipment available at the present time. No problems are anticipated in safely drilling wells; however, as further precaution, this contingency and evacuation plan has been prepared and adopted to provide means of insuring the safety of personnel and the general public, should a disaster occur.

II. GENERAL INFORMATION AND PHYSIOLOGICAL RESPONSES TO H_2S EXPOSURE*

H_2S is a colorless flammable gas having, in low concentrations, an odor resembling rotten eggs. However, odor cannot be relied upon as a means of detection since high concentrations or continued exposure to low concentrations tends to paralyze the sense of smell. H_2S is an irritant and extremely toxic gas which is several times deadlier than carbon monoxide and almost as deadly as hydrogen cyanide. The significance of the CO_2 is its ability to extinguish pilot lights and flames and allowing the emission of unburned H_2S.

Low concentrations of H_2S cause headaches. Higher concentrations (100 ppm) cause irritations of the eyes, nose, throat and lungs. Sense of smell is lost in 2.5 minutes. Eyes become red and swollen, accompanied by sharp pain in more severe cases. Still higher concentrations (500 ppm) cause dizziness, unconsciousness and failure of respiration.

H_2S is heavier than air. On still days, it tends to accumulate in low places in dangerous concentrations. However, if it is warmer than the surrounding air, it may tend to rise. Thus, personnel working in high places under these conditions should do so with caution!

In a 10 mph wind, a gas plume will travel one mile in six minutes.

The physiological response to various concentrations of H_2S is as follows:

Percent (%)	ppm	100 std. ft.^{3}**	Physical Effects
0.001	10	.63	Obvious and unpleasant odor. Safe for 8 hours exposure.

0.01	100	6.30	Kills smell in 3 to 15 minutes; may sting eyes and throat.
0.02	200	12.59	Kills smell shortly; stings eyes and throat.
0.05	500	31.49	Dizziness; breathing ceases in a few minutes; needs prompt artificial respiration.
0.07	700	44.08	Unconscious quickly; death will result if not rescued promptly.
0.10	1000	62.98	Unconscious at once; followed by death within minutes.

* Information taken from American Petroleum Institute, "Recommended Practices for Safe Drilling Wells Containing Hydrogen Sulfide". - RP49, September 1974, reissued August 1978, and Chevron U.S.A. Inc. Material Information Bulletin, 301, Hydrogen Sulfide.

Sulfur Dioxide (SO_2) will be formed with the burning of hydrogen sulfide gas in the vapor phase. This gas, although colorless, can be identified by its characteristic pungent odor. SO_2 is so intensely irritating that concentrations of 3 to 5 parts per million are readily detectable by the normal person. Yet under certain meteorological conditions and large volumes, SO_2 may become more dangerous than hydrogen sulfide. Therefore, though the well has been ignited, one cannot be less vigilant, because SO_2 can kill.

III. SPECIAL HEALTH PROBLEMS

Knowledge of toxicology of H_2S permits the identification of individuals who are hypersusceptible to H_2S and its by-products. These are individuals whose capacity to tolerate H_2S is reduced by special health problems such as: a perforated ear drum may allow air passage through the Eustachian Tube into the respiratory tract. Emphysema, Chronic Pulmonary Obstructive disease of Bronchial Asthma, Coronary Artery Disease of Angina Pectoris, Myocardial Infraction of Progressive or Severe Hypertension, along with Diabetes, or Grand Mal Epilipsy, Eye Infections, Anemia, Alcoholics or individuals who have consumed alcohol within 24 hours of exposure. Also persons having psychiatric problems are a poor risk at any H_2S level.

IV. SPECIAL PROBLEMS IN RESPIRATOR USE

Facial Hair: Facial hair laying between the sealing surface of the respirator facepiece and the wearer's skin will prevent an effective seal. Even one day's growth of stubble will permit excessive contaminant penetration. Persons with facial hair that prevents proper seal on facemask will not be allowed on Chevron wellsites.

Contact Lenses: Contact lens are a definite hazard and should not be worn while wearing a respirator in a contaminated atmosphere.

Corrective Spectacles: Corrective spectacles with temple bars or straps that interfere with the respirator face seal shall not be used as it will permit excessive contaminant penetration. The use of an eyeglass retainer and special prescription glasses for use in facemask should be used instead.

Psychological Disturbances: Psychological disturbances such as Claustrophobia are a definite hazard to the wearer of a respirator.

V. TREATMENT PROCEDURES FOR H_2S POISONING

A. Remove the patient to fresh air. Call physician and ambulance if possible.

B. If breathing has ceased or is labored, begin artificial respiration immediately. Continue until physician is available, even if person appears to be not breathing. NOTE: This is quickest and preferred method for clearing patient's lungs of contaminated air. However, under disaster conditions, it may not be practical to move patient to fresh air. In such instances, where those rendering first aid must continue to wear masks, a resuscitator should be used.

C. If giving artificial respiration, and victim is breathing, use resuscitator to help eliminate H_2S from blood stream. Continue until physician or ambulance arrives.

D. Keep at rest and prevent chilling.

E. Get patient under physician's care as soon as possible.

VI. RESPONSIBILITIES

A. Man-in-Charge

To assure the proper and orderly execution of this plan, it is absolutely essential that one man be in complete charge of and responsible for its implementations. The assigned Chevron Drilling Representative on location will be this man.

B. Testing

During any testing of the well, such as drill stem test, all gas will be flared and any liquid will be put through a separator for flaring of dissolved gas.

Special procedures and contingency plan for production testing the well after releasing the rig will be established and approved prior to such testing.

C. Head Count

A log of Company and contract personnel will be maintained in order to keep an accurate count of the number of and names of people on location at all times. This log shall be maintained as current as possible.

VII. WELLSITE PROCEDURES AND PRECAUTIONS

A. Location

1. Location shall be constructed large enough so that rig can be rigged up to take advantage of prevailing winds.

2. Mud tanks, shale shaker, degasser, solids removal equipment and reserve pit should be located downwind and away from substructure to provide for more ventilation.

B. Blowout Preventer Requirements

The BOP hookup shall include 3 ram-type, a Hydril and choke manifold, all 5000 psi W.P. minimum, which meets Chevron's specifications for H_2S service. The contractor shall furnish to Chevron certification by the manufacturer and/or rental agency that the equipment is certified for H_2S service.

C. Blowout Preventer Pit Drills

Pit drills are for the purpose of acquainting each member of the drilling crew with his duties in the event an emergency arises. Drills will be held with each crew initially as frequently as required to thoroughly familiarize each man with his duties. Drills are to be held at least weekly after entering a formation known to contain H_2S. These drills will be initiated and supervised by the Chevron Drilling Representative on location.

D. Warning System

1. Wind Direction

    a) Wind socks to be installed in open area easily visible from anywhere on the rig.

    b) Colored streamers will be tied to each flare.

    c) Appropriate warning signs and flags will be placed at all entrances to the location.

2. Kick Indicators

   a) Trip tank to be used on trips to determine that the hole is being filled properly.

   b) Flow indicator to indicate that the flow returns are neither gaining nor dropping off.

   c) Pit Volume Totalizer (PVT)

      PVT continuously records pit volume and sounds alarm when a preset gain or loss in pit volumes is indicated.

3. H_2S Detection

   a) An H_2S detector will continuously monitor air from a trap at the mud shaker, the bell nipple, the cellar, and the rig floor. Concentrations greater than 10 PPM will be detected.

   b) A "sniffer" manual H_2S detector will be available.

4. From top of the H_2S bearing formation to TD Drilling Engineers or Foreman in charge shall consult daily with the wellsite Development Geologist or mud loggers for any changes in geologic markers indicating possible changes in important formation tops.

E. Protection of Personnel

Training Program

1. All personnel shall be instructed in the proper use of personal safety equipment, H_2S detectors and alarms, briefing areas, evacuation procedures and prevailing winds. Training of all personnel, whether regularly assigned, contract or employed on an unscheduled basis shall be carried out by the contract Safety Supervisor assigned to the location.

2. A drill and training session will be conducted every two weeks and recorded on the driller's log.

3. Two briefing areas will be designated for assembly of personnel during emergency conditions, located so one is up-wind of the well at all times. Personnel shall be trained to practice routine observation of wind direction.

4. The Chevron Drilling Representative shall be responsible for the overall operation of on-site safety and training programs.

Personnel Protective Equipment

1. All working personnel on a facility shall be equipped with proper protective-breathing apparatus. The operator shall provide such equipment for the normal number of personnel involved in the operation. The operator is not required to furnish protective-breathing equipment for service personnel, but he is required to inform service contractors of the necessity of having this equipment, when called to the location. Lightweight, escape-type self-contained breathing apparatus with a minimum of 5 minutes supply must be maintained at an easily accessible location for the derrickman, and at any other location where escape from an H_2S atmosphere would be difficult. Additional protective breathing apparatus of the pressure-demand or continuous-flow type (full face piece supplying breathing quality air for an extended period while maintaining a slight pressure inside the system) shall be provided for all essential crew members. Such equipment will conform to Occupational Safety and Health Administration Standards 29 CFR 1910.132, Subpart I, Personal Protective Equipment, and American National Standard Practices for Respiratory Protection Z88.2

2. Storage of protective-breathing apparatus shall be planned to assure at least one available apparatus regardless of current wind conditions. The contract safety supervisor will be responsible for maintenance of all safety equipment.

3. Each system must have an alarm signal for low air supply.

4. Additional personnel safety equipment must be available for use:

   a) Chalk boards and note pads for communication
   b) First-aid supplies
   c) Resuscitators

5. Large explosion-proof mechanical blowers may be used if necessary to direct vapors in the desired direction as protection against calm or extremely light winds. Use of such ventilation equipment shall be provided in work areas where H_2S vapors might accumulate and need to be dispersed.

6. All personnel are to have ear plugs. Those with punctured ear drums must wear ear plugs.

Visible Warning System

Operational danger signs shall be displayed on each entrance to the location complete with flags. The signs with flags will indicate the following conditions and requirements:

1. Green Flag - Moderate danger. When the concentration reaches 20 ppm H_2S, the signs will be displayed. The detection efforts shall be intensified, and steps taken to eliminate or neutralize the condition.

2. Yellow Flag - Intermediate danger. When H_2S determined to be in the 20-100 ppm range, the flag shall be hoisted, protective breathing apparatus shall be worn by all working personnel, and all nonworking personnel moved to safe areas.

3. Red Flag - Extreme danger. When H_2S has exceeded 100 ppm concentration, all nonessential personnel or all personnel (as appropriate) shall be evacuated.

4 During the time when the well is being production tested or when extreme danger conditions exist, the entrances to the location will be blocked and a guard posted to keep out all nonessential personnel.

F. Communication

1. Telephones

   a) A telephone will be installed in Chevron and Tool Pushers trailers on location.

2. Six (6) two-way walkie-talkie type radios will be in the Chevron trailer, prior to entering the H_2S formation, for use as a portable communication system.

G. General

1. Flaring System - Two flares shall be positioned with respect to the rig such that one or the other will be downwind of the rig at all times. The flare stacks will be a minimum of 16' in height.

   a) All choke manifolding, the mud gas separator vent and the degasser vent shall be tied into the flare system. The pipe to both flares will be adequate size so that minimum back pressure will be had.

   b) A continuous pilot fed by LPG shall be maintained at each flare.

   c) Backup ignition for each flare shall be provided by:

      1) Automatic ignitors on each flare.

    2) Very pistols (one in Chevron trailer, one in tool pushers' trailer).

2. H_2S is normally heavier than air and thus seeks low places. For this reason, calm days can be more dangerous than windy days since high concentrations can accumulate in the lows over a period of time.

   CAUTION! If the H_2S is warmer than the surrounding air (as it probably will be during the winter months), then it will rise. In this case the derrickman is vulnerable and should frequently monitor high position.

3. When H_2S contamination is present, work in pairs - the buddy system - insofar as possible!

4. Absolutely no smoking when H_2S contamination is present. H_2S is highly flammable!

   Smoking during normal operations should be allowed only in designated areas.

VIII. PROTECTION AND EVACUATION OF THE GENERAL PUBLIC

A. Contingency Plan

1. Before reaching the top of the H_2S bearing formation (minimum of 500 feet above), the following measures are to be put into effect:

   a) Zinc carbonate or Zinc oxide shall be added to the mud as an H_2S scavenger. The mud returns will be monitored frequently with the scavenger added as needed to maintain a residual (2-3#/bbl). This treatment will be continued to TD.

   b) An H_2S Safety Service Company will be contracted to assist the Chevron Drilling Representative in training of well personnel and monitoring H_2S.

   c) A safety meeting with Chevron personnel, each crew and tool pusher and mud loggers will be held covering use of SCBA, resuscitator, first aid, etc. Notify Division Office at least 48 hours before meeting so appropriate personnel can attend meeting.

   d) Post in conspicuous form at telephone station the phone number of:

1. Sheriff's Office
2. Ambulance Service
3. Hospital
4. Doctor's Numbers
5. Highway Patrol

B. Evacuation Plan

1. Kick

Action will be withheld pending further development.

2. Blowout or Imminent Blowout

If, in the judgement of the Chevron Drilling Representative, it is practically certain that blowout will occur or it happens almost instantaneously, the following procedures will be put into effect:

a) Evacuate well site personnel.

b) Chevron Drilling Representative will set well on fire.

c) All personnel evacuating drill site will wear SCBA if possible.

d) Vehicles of key personnel will be supplied with H_2S manual detectors prior to entering the H_2S.

e) If location is evacuated and/or set fire, the Chevron Drilling Representative and tool pusher will remain as near location as possible to assure against flameout. Keep local authorities informed of developments and needs through telephone or mobile radio contact.

f) Notify by phone or in person, all residents within a 2-mile radius of the well, see list of Emergency Phone Numbers.

C. Evacuation of General Public

1. Before drilling into the H_2S formation, all residents within a 2-mile radius will be alerted as to the potential danger.

2. The Highway Patrol Office and County Sheriff's Office will be requested to help in stopping unnecessary traffic moving toward the locations.

3. General

a) Chevron desires to cooperate with these authorities to the fullest extent and will exert every effort by careful advise to such authorities to prevent panic.

Since it is desirable to have one Company source of information in such instances, a Chevron Public Relations Coordinator will be at the disaster as soon as possible. The Chevron Drilling Representative will keep the Public Relations Coordinator fully informed at all times and will be responsible for obtaining such information as he may require.

Until such time as the Public Relations Coordinator has arrived, Chevron personnel will cooperate with and provide such information to civil authorities as they might require.

b) Since one of the products of the combustion of hydrogen sulfide gas is sulphur dioxide (SO_2), under certain conditions, this gas may be equally as dangerous as H_2S. A "manual detector" type device, which determines the percent of SO_2 in air and concentrations in PPM, will be at hand upon entering the top of the H_2S formation. Although normal air movement is sufficient to dilute this material to safe levels, the SO_2 detector should be utilized to check concentrations in the proximity of the well once every 8 hr. shift. Also, if any low areas are suspected of having high concentrations, personnel should be made aware of these areas if they are found to have hazardous concentrations.

c) In the event it is necessary to evacuate any local residents, it is the responsibility of the Chevron Representative to see to it that they find suitable housing such as a nearby motel.

IX. TELEPHONE NUMBERS

Chevron Supervisory Personnel

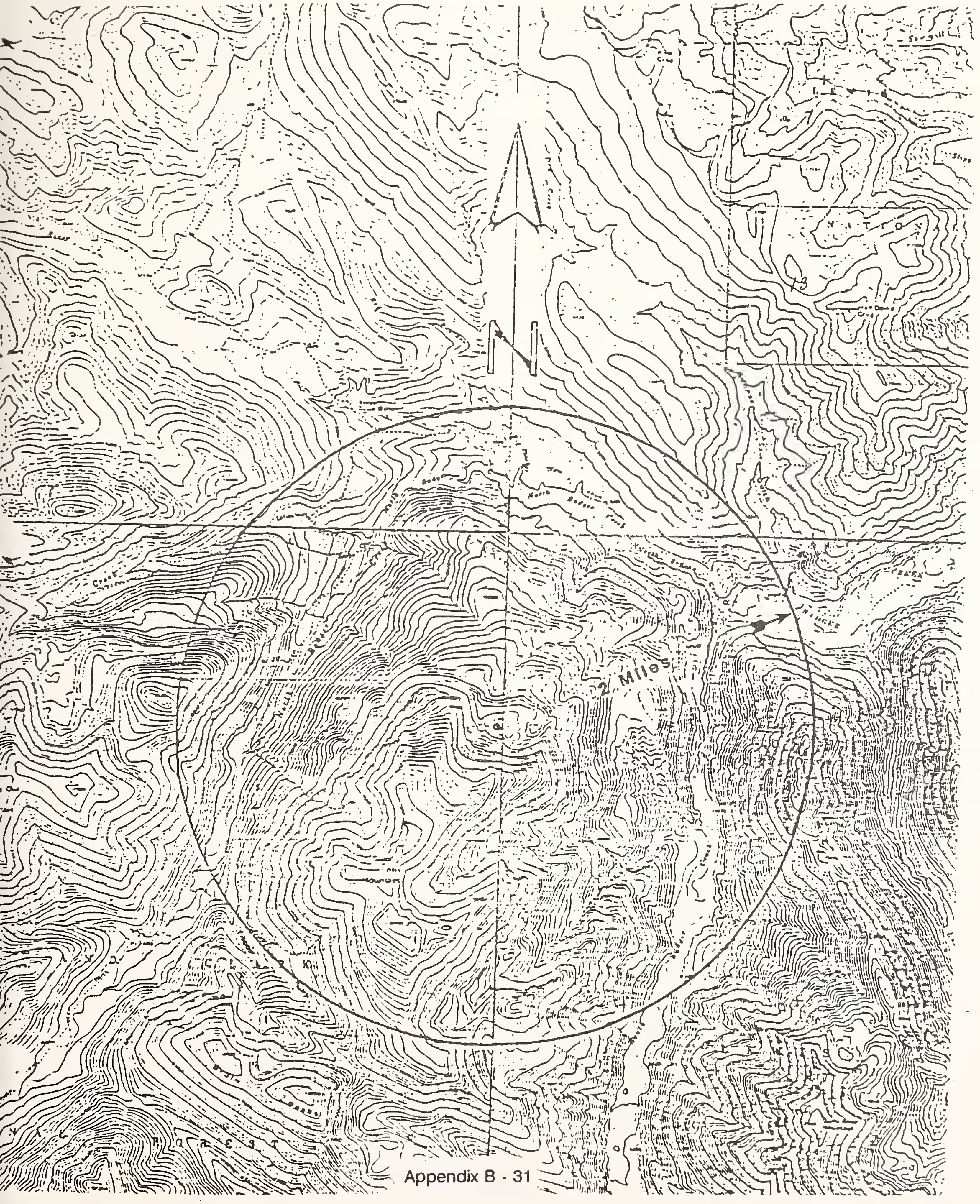
B. L. Haynes, Jr. - Division Drilling Manager
Office: (303) 930-3403

L. Lee - Drilling Superintendent
Office: (303) 930-3554

D. F. Forsgren - Environmental, Safety, Fire and Health Coordinator
Office: (303) 930-3439
Home: (303) 693-9844

Local Contacts

Sheriff's Office, Choteau or Cut Bank	911
Cut Bank	(406) 873-2711


N
2 Miles

Ambulance, Browning		(406) 338-5555
or		(406) 338-5455
Hospital, Browning		(406) 338-6153
Hospital, Cut Bank		(406) 873-2251
Deaconess Medical Center, Great Falls		(406) 761-1200
Columbus Hospital, Great Falls		(406) 727-3333
Highway Patrol, Cut Bank		1-800-472-8765
Doctors: Cut Bank		
Dr. J. Kegel	Office	(406) 873-5044
Dr. J. Wallace	Office	(406) 873-2286
Dr. P. Shepard	Office	(406) 873-2205
USFS, Choteau		(406) 466-5341
USBLM, Great Falls		(406) 727-0503
Minuteman Helicopters, Missoula		(406) 728-9363
Dan Gliko Helicopters, Belt		(406) 277-3255
U.S. BIA Supt. Blackfeet Indian Agency		(406) 338-7544

Residents within 2 mile radius: None

CONVERSION FACTORS FOR H_2S IN NATURAL GAS

GIVEN	REQUIRED		
	Grains per 100 Cu. ft.	Parts per Million	Mol Percent
ains Per 100 ft.^{3}	—	Grains ÷ (0.05341 x S.G)	Grains x 0.00159
rts Per Million	PPM x 0.05341 x S.G.	—	PPM x Sp. Gr. ÷ 1.177 x 10
ol Percent	Mol % ÷ 0.0015908	(Mol % x 1.177 x 10^4) ÷ Sp. Gr.	—

EXAMPLE (0.6 SPECIFIC GRAVITY GAS)

Grain / 100 ft.^{3}	—	1 ÷ (0.05341 x 0.6) = 31.20	1 x 0.00159 = 0.00159
Part / Million	1 x 0.05341 x 0.6 = 0.032	—	1 x 0.6 ÷ 1.177 x 10^4 = 5.1 x 10
Mol %	$\frac{1}{0.0015908}$ = 628.6	1 x 1.177 x 10^4 ÷ 0.6 = 19,617	—

EXAMPLE (0.7 SPECIFIC GRAVITY GAS)

Grain / 100 ft.^{3}	—	1 ÷ (0.05341 x 0.7) = 26.75	1 x 0.00159 = 0.00159
Part / Million	1 x 0.05341 x 0.7 = 0.037	—	1 x 0.7 ÷ 1.177 x 10^4 = 5.9 x 10^{-}
Mol %	1 ÷ 0.0015908 = 628.6	1 x 1.177 x 10^4 ÷ 0.7 = 16,814	—

EXAMPLE (0.8 SPECIFIC GRAVITY GAS)

Grain / 100 ft.^{3}	—	1 ÷ (0.05341 x 0.8) = 23.40	1 x 0.00159 = 0.00159
Part / Million	1 x 0.05341 x 0.8 = 0.043	—	1 x 0.8 ÷ 1.177 x 10^4 = 6.8 x 10
Mol %	1 ÷ 0.0015908 = 628.6	1 x 1.177 x 10^4 ÷ 0.8 = 14,713	—

Note to User:

American Petroleum Institute (API) Recommended Practices for Safe Drilling of Wells Containing Hydrogen Sulfide (Aug. 1978) is part of this plan as submitted by Chevron USA, Inc. Because of its length, it was not included for publication in this document. The API document can be reviewed at the BLM or FS offices noted on the frontspiece of this document, or it can be requested from the American Petroleum Institute, Washington, DC.

MULTI-POINT SURFACE USE & OPERATING PLAN

AMERICAN PETROFINA COMPANY OF TEXAS
APCOT - AGIP FEDERAL SOUTH GLACIER #1-26
SEC 26 - TWP 30N - RGE 13N
GLACIER COUNTY, MONTANA

Bureau of Land Management
Great Falls Resource Area
RECEIVED
NOV 18 1983
Great Falls, Montana

1. EXISTING ROADS:

Refer to Map #1 (color coded).

[A] The location is staked, and two 200' directional reference stakes have been placed.

[B] Alternative A: From the town of East Glacier proceed approximately 6 miles southwest on U.S. Highway #2. Turn left at Rising Wolf Ranch road. Follow new road approximately 5 miles to the location.

Alternative B: From the town of East Glacier proceed approximately 8 miles southwest on U.S. Highway #2. Turn left and follow new road approximately 7.5 miles to the location.

Alternative C: From the town of East Glacier proceed approximately 12 miles southwest on U.S. Highway #2 to the Summit Creek Forestry road. Follow the Forestry road approximately 1.5 miles, turn left and follow new road approximately 7.5 miles to the location.

(These alternatives are color coded on Map #1.)

[C] Shown on Map #1.

[D] The only roads within a three mile radius of the proposed location are jeep roads and seismic trails. They are unimproved and can only be travelled by means of four wheel drive vehicles or trail bikes.

[E] Exploratory well - N/A.

[F] All alternatives will require new construction. If alternative C is used, that portion of the existing Forestry road utilized will be improved as necessary to allow access during drilling and completion operations. All roads will be maintained to ensure smooth operations.

2. PLANNED ACCESS ROADS: (Map #2)

(1) Maximum width - 14' except where curve widening is required.

(2) Maximum grade - 6%.

(3) Turnouts - as required and with the approval of the Forest Service engineering staff.

continued...

Bureau of Land Management
Great Falls Resource Area
RECEIVED
NOV 18 1983
Great Falls, Montana

(4) Drainage design - as shown.

(5) Location and size of culverts - as required.

(6) Surfacing materials: The new road will be gravelled to a sufficient depth approved by the Forest Service. The gravel will be hauled from the existing pit southwest of East Glacier if no suitable material is found on or near the proposed road.

(7) The existing 33' easement from U.S. Highway #2 to a point where it crosses the South Fork of the Two Medicine Creek crosses a fence line in three places. Heavy duty 16' cattle guards will be installed at these points.

(8) The proposed road (Alternative A) has been center-line flagged to conform to Forest Service requirements, as specified in Guidelines for Oil and Gas Development, 2nd Edition, September 1983.

3. LOCATION OF EXISTING WELLS:

There are no existing wells within a two-mile radius of the proposed well.

4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES:

[A] Existing facilities:

1) Tank batteries - none.
2) Production facilities - none.
3) Oil gathering lines - none.
4) Gas gathering lines - none.
5) Injection lines - none.
6) Disposal lines - none.

[B] New facilities contemplated - (will depend upon the nature of the discovery):

1) All facilities will be located on the well pad.
2) Facilities will require an area of approximately 150' X 200'.
3) Construction methods and materials. All materials will be obtained on site for pad construction. All tanks, production units or any other equipment will be surrounded by impervious berms of sufficient size to contain any fluids there in.

continued...

Bureau of Land Management
Great Falls Resource Area
RECEIVED
NOV 18 1983
Great Falls, Montana

4) All facilities will be fenced to protect wildlife and livestock.

[C] All topsoil will be shipped and stockpiled and utilized in the restoration of all disturbed areas. The disturbed areas will be graded and/or leveled, the topsoil will be spread and the areas will be reseeded with a tame grass mixture compatible with the environment. All restoration and reseeding will be done as per the recommendations of the Forest Service.

5. LOCATION AND TYPE OF WATER SUPPLY:

[A] Water for the drilling operation will be obtained at the point where the proposed access road crosses the South Fork of the Two Medicine River.

[B] Water will be hauled by tank truck from this point to the location. No additional road construction will be required.

[C] No water well will be drilled.

[D] American Petrofina Company of Texas will obtain the necessary state permits to use this water prior to the commencement of operations.

6. SOURCE OF CONSTRUCTION MATERIALS:

[A] Surface and subsurface materials will be used to build the sub-grade of the access road. Gravel from the pit located southwest of East Glacier will be crushed, sized and hauled to top the new road.

[B] N/A.

[C] See part A.

[D] No new access roads will be required.

7. METHODS FOR HANDLING WASTE DISPOSAL:

(1) Cuttings will be deposited in the reserve pit.

(2) Drilling fluids will be contained within the reserve pit and allowed to evaporate. If the well is abandoned the drilling mud may be injected into a subsurface zone approved by the BLM.

(3) Any produced fluids during testing operations will be put in tanks. Any oil will be sold and salt water hauled off for disposal. Any deleterious fluids spilled will be cleaned up and removed.

continued...

Bureau of Land Man ent
Great Falls
RE
NOV 18 1983
Great Falls, Montana

(4) Sewage: If a camp is utilized for this operation, a septic tank system or chemical toilets will be used. These systems will conform to the requirements of the Glacier County Board of Health.

(5) Garbage: All combustible trash will be burned using an approved incinerator. Trash pits will be fenced with small mesh wire to prevent scattering by the wind. All food garbage will be stored in sealed containers prior to incineration to avoid attracting bears. All non-combustible materials will be hauled away or buried as approved by the U.S. Forest Service.

(6) The wellsite will be properly cleaned up after the operation is completed. All pits will be fenced prior to backfilling.

8. ANCILLARY FACILITIES:

A camp may be used during the drilling operation. It will be set up on the location and will consist of approximately 6 trailers. These will provide eating, sleeping, bathing and recreational facilities.

9. WELLSITE LAYOUT:

A plat as required is attached showing cross sections of cuts and fills, location and orientation of the rig. The location of the reserve pit, flare pit, pipe racks, camp facilities, parking areas and access road are also shown. The reserve pit will not be lined unless fractured rock or other permeable strata is found to exist. If this occurs, the pit will be lined with bentonite in sufficient quantities to prevent the escape of fluids from the pit.

10. PLANS FOR RESTORATION OF SURFACE:

All marketable timber from the location and access road will be stockpiled and sold or otherwise disposed of. All slash and stumps will be burned and the residue buried as required by the U.S. Forest Service.

All topsoil stripped will be stockpiled and used during restoration. The restoration of the wellsite will commence as soon as the pits are dry enough to allow backfilling. The wellsite will be leveled and recontoured and the restored areas will be reseeded. Steps will be taken to minimize erosion prior to the establishment of a good cover. All waste materials will be hauled off or buried when the rig is removed. All pits will be fenced and the fences maintained prior to backfilling.

11. OTHER INFORMATION:

(1) The proposed location is on a wooded ridge that is on the north-

continued...

Bureau of Land Manag
Great Falls Resource Area
RECEIVED
NOV 18 1983
Great Falls, Montana

ern flank of Two Medicine Ridge. The vegetation at the wellsite is lodgepole pine and the access road traverses open grassy slopes with stands of lodgepole pine in the upland and alder trees in the lower areas. The main wildlife in the area are deer, elk and bear.

(2) The surface use activities for the area are cattle grazing, hunting and snowmobiling. The surface is all owned by the Federal Government.

(3) There is no surface water in the vicinity of the proposed drillsite. The access road will cross the South Fork of the Two Medicine River by means of a bridge constructed to Forest Service specifications. In addition, the road will cross Hall Creek and an intermittent stream by means of large culverts. The closest inhabited dwelling is the Rising Wolf Ranch, approximately 3 1/2 miles northwest of the drillsite. An archaelogical study has been done, and there are no archaelogical, historical or cultural sites in the area.

12. LESSEE'S OR OPERATOR'S REPRESENTATIVE:

Ken D. Spraggs - President
Snowcap Energy Incorporated
188 South Dekker Drive
Golden, Colorado 80401
phone (303) 526-0840

13. CERTIFICATION:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite and access route; that I am familiar with the conditions that presently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and, that the work associated with the operations proposed herein will be performed by American Petrofina Company of Texas and its contractors in conformity with this plan and the terms and conditions under which it is approved.

Snowcap Energy Incorporated

Nov. 4, 1983
Date

Ken D. Spraggs - President

[illegible]
[illegible]
DEC 27 1983
Great Falls, Montana

ADDENDUM TO

AMERICAN PETROFINA - HALL CREEK

APD - 13 POINT PLAN

Point #

1. (General) Road management - all drilling crews will ride to the wellsite with their respective drillers. A gate, guarded 24 hours, will be installed at the point where the three alternative routes join. This will be used to restrict access to the wellsite during that portion of the drilling operation when H_2S may be encountered. If the U.S. Forest Service requires further restrictions, and with the U.S. Forest Service's specific authority, American Petrofina will provide a guarded gate at the point where the new access road joins Highway #2.

2. (General) A copy of the road agreement is attached.

2. (6) If no suitable material is found on or near the proposed site, material from the existing pit southwest of East Glacier will be used. American Petrofina and its contractors will work with the Weed Control Officer of the USFS to ensure that no gravel that may contain noxious weed seeds will be used on the road.

4. (C) A seed mixture provided by the U.S. Forest Service will be used to re-seed the restored disturbed areas.

5. (a) (b) An on-site water well will not be drilled for this project because it is extremely unlikely that an acquifer of sufficient size or productive capacity will be encountered in the Blackleaf Formation, which outcrops on the wellsite.

7. (2) All drilling fluids will be hauled off to an appropriate disposal site and the pits closed at the close of operations.

7. (5) All trash not incinerated will be hauled to an active sanitary landfill and disposed at that point.

9. (General) The reserve pit will be lined by a fiber-glass reinforced plastic liner to ensure that all drilling fluids are contained within the reserve pit.

11. (3) Current ground conditions preclude an archeological survey of the proposed access re-route at this time. In view of the negative results from the study done by Historical Research Associates for this project, it is unlikely that any cultural resources will be encountered by the proposed access re-route. However, a field survey will be undertaken when conditions permit and an addendum to the report will be filed.

continued...

Bureau of Land Management
Great Falls Resource Area
RECEIVED
DEC 27 1983
Great Falls, Montana

ADDENDUM TO
AMERICAN PETROFINA HALL CREEK
APD 13 POINT PLAN

10. Point Deficiencies / additional information needed.

Surface casing - 1500' 13 3/8" 54.50# K55 ST&C casing.
Calc. safety factors 1.216 (burst) 1.152 (collapse) 1.800 (tension).
Maximum design surface pressure 1000 psi.

Intermediate casing 9 5/8".
Surface to 5100' 40# S80 LT&C.
Calc. safety factors 1.214 (burst) 1.218 (collapse) 1.800 (tension).

5100' to 7200' 40# SS95 LT&C.
Calc. safety factors 1.124 (burst) 1.738 (collapse) 1.800 (tension).

7200' to 9500' 43.50# SS95 LT&C.
Calc. safety factors 1.336 (burst) 1.182 (collapse) 1.800 (tension).

Maximum design surface pressure 4730 psi.

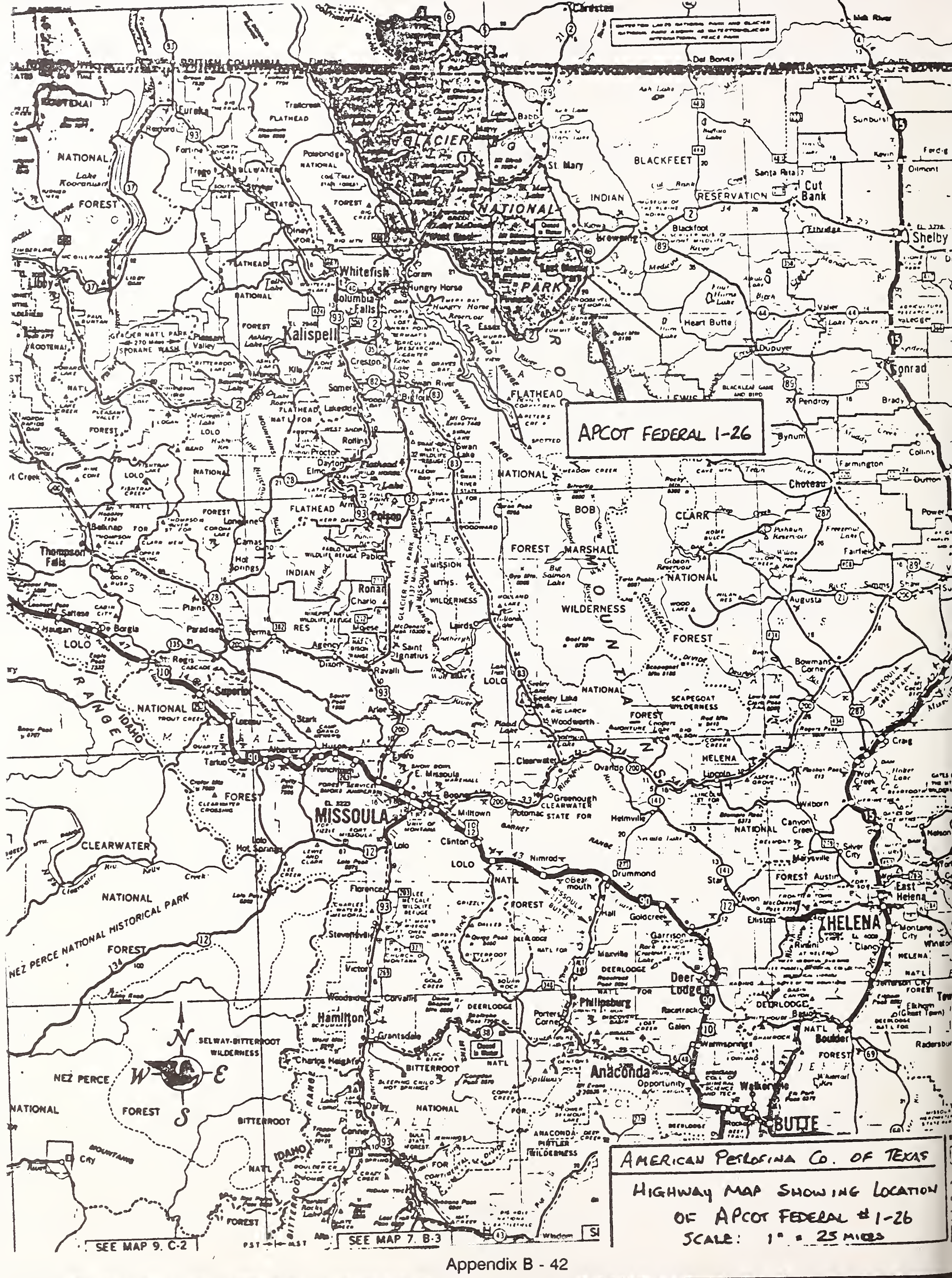
Estimated bottom hole pressure gradient is 0.37 psi/foot, therefore maximum estimated bottom hole pressure @ 13,090' is 4843 psi.

If the wellbore is filled with 0.60 gravity natural gas and no drilling fluid; this bottom hole pressure would result in a surface pressure of 3729 psi. Therefore, the worse case surface pressure would be in the order of 2000 psi.

Respectfully Submitted,
SNOWCAP ENERGY INCORPORATED

Ken D. Spraggs
President

KDS/cs



AMERICAN PETROFINA CO. OF TEXAS

HIGHWAY MAP SHOWING LOCATION OF APCOT FEDERAL # 1-26

SCALE: 1" = 25 MILES

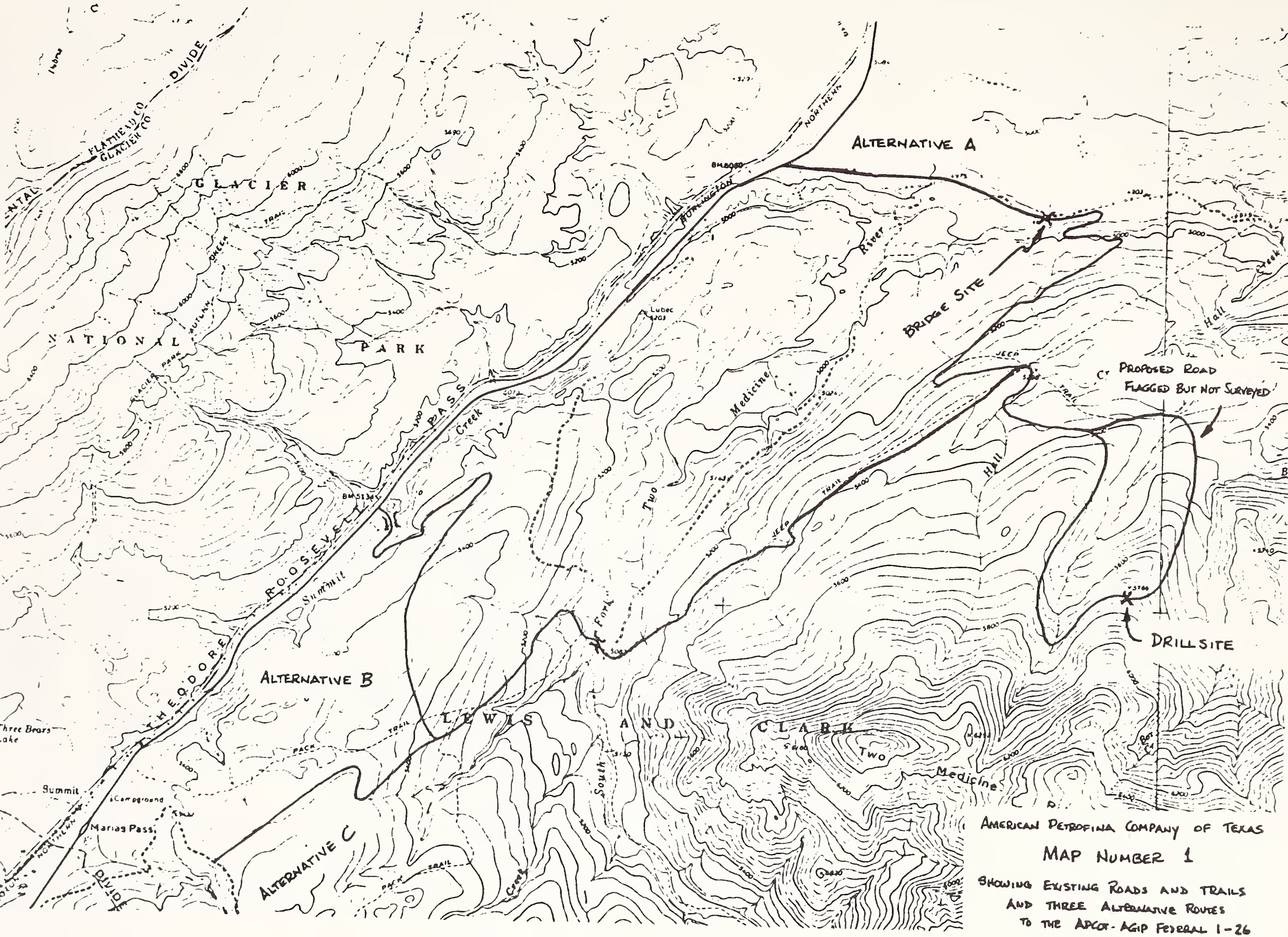
LEGEND

ALTERNATIVE A

ALTERNATIVE B

ALTERNATIVE C

SCALE
1: 24,000
NOVEMBER
1983



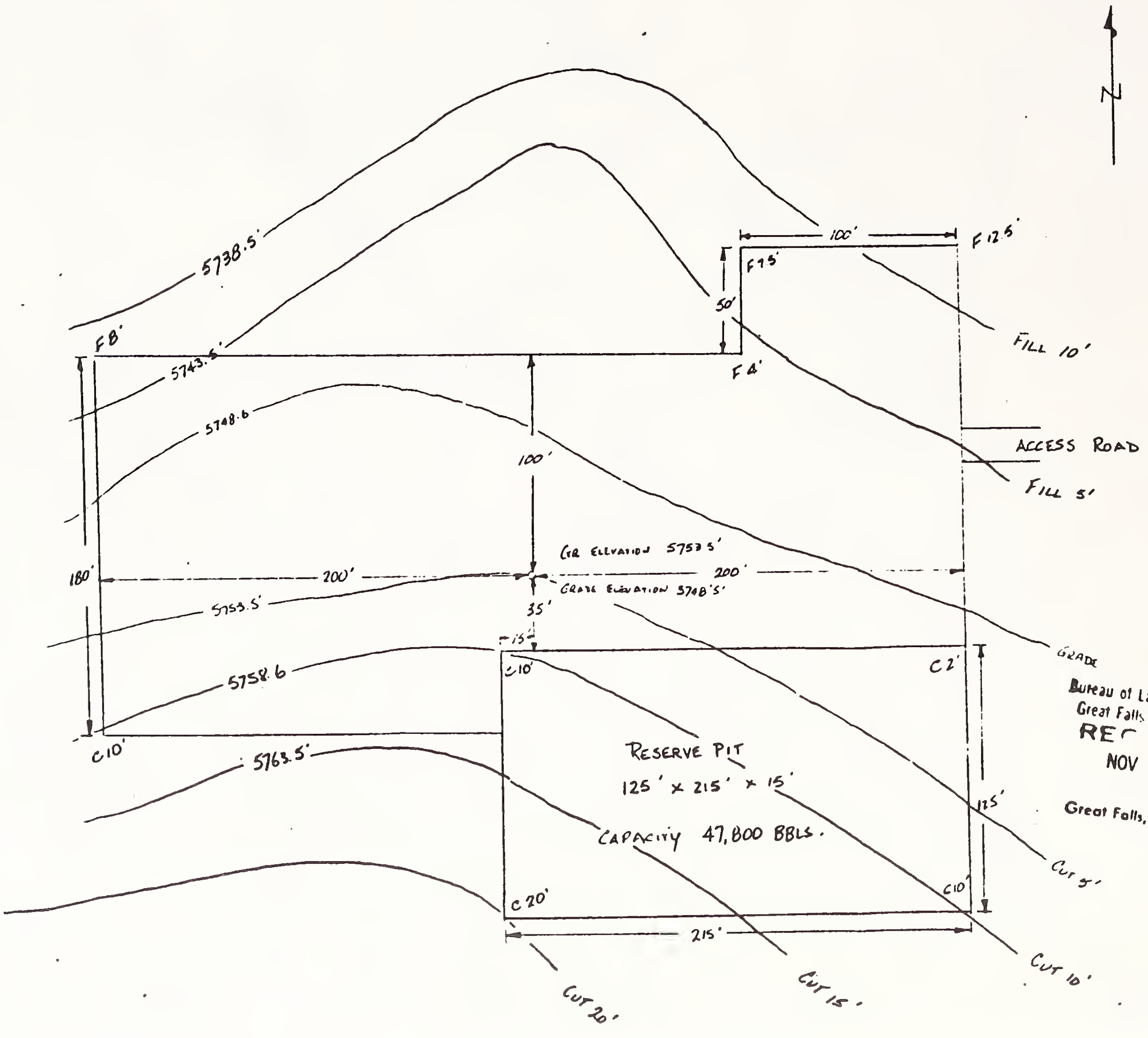
AMERICAN PETROFINA COMPANY OF TEXAS

MAP NUMBER 1

SHOWING EXISTING ROADS AND TRAILS
AND THREE ALTERNATIVE ROUTES
TO THE APCOT-AGIP FEDERAL 1-26

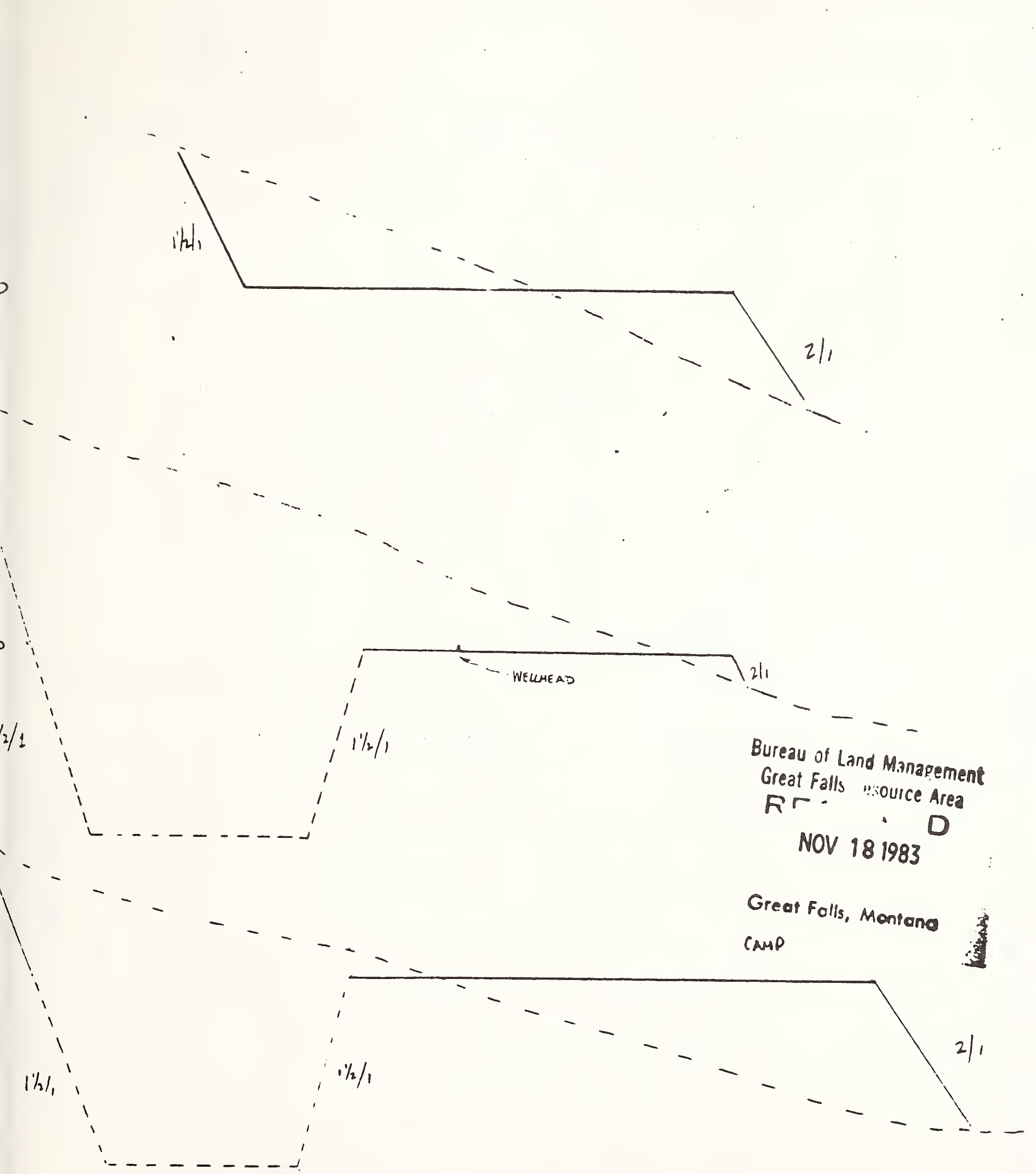
DRILLSITE LAYOUT
SHOWING CUTS & FILLS
SCALE 1" = 50'
CONTOUR INTERVAL 5'

SUNCAP ENERGY INCORPORATED
GOLDEN CO 80401
NOVEMBER, 1983



Bureau of Land Management
Great Falls [illegible] Area
REC[illegible]D
NOV 18 1983
Great Falls, Montana

AMERICAN PETROFINA COMPANY OF TEXAS
APCOT-AGIP SOUTH GLACIER FED 1-26
NE/SW/NE Sec 26 Twp 30N R13W
GLACIER COUNTY MONTANA.



Bureau of Land Management
Great Falls Resource Area
RECEIVED
NOV 18 1983
Great Falls, Montana
CAMP

CROSS SECTIONS THROUGH

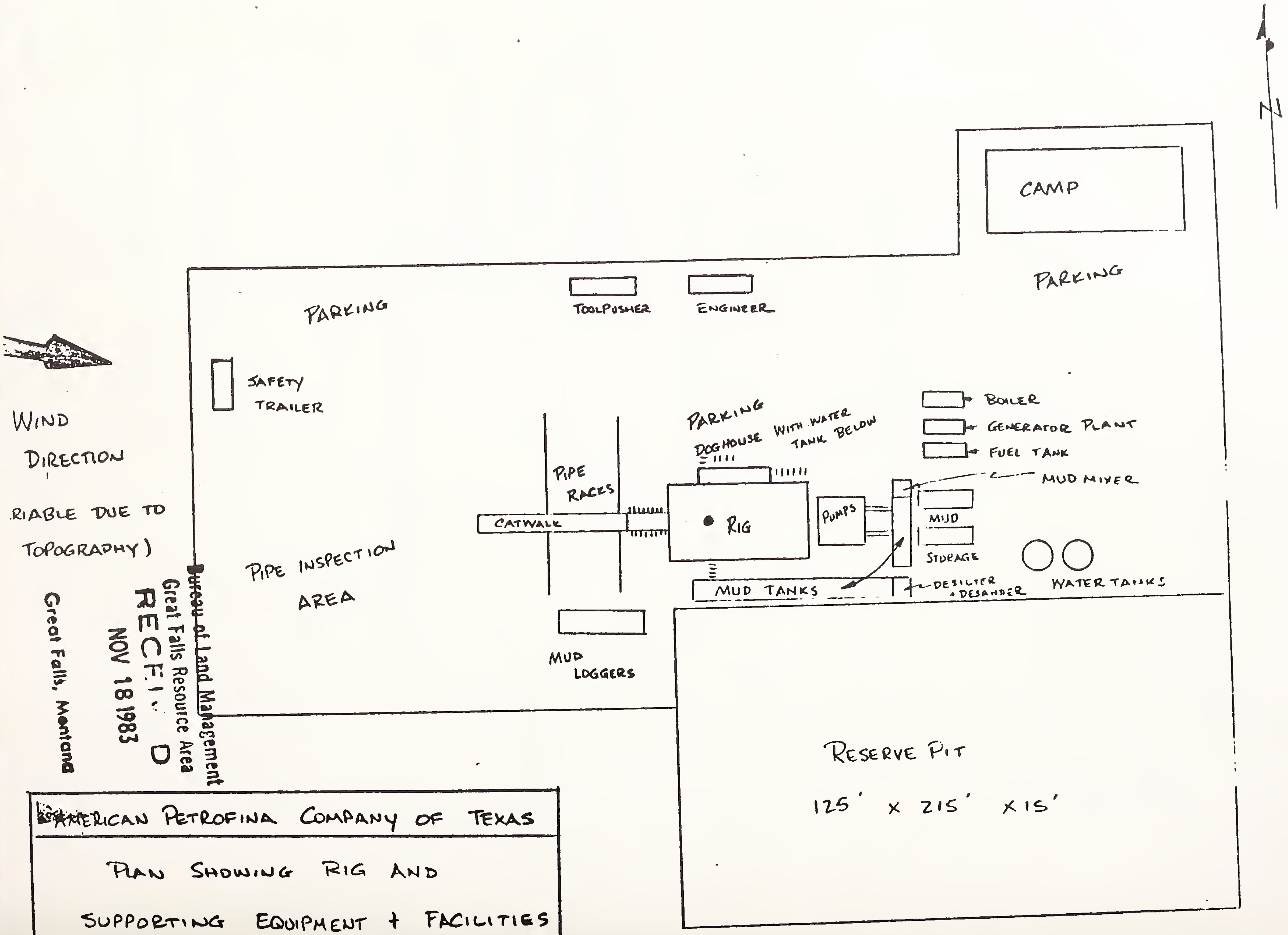
APCOT - AGIP FEDERAL SO. GLACIER 1-26

DRILLSITE.

HORIZ SCALE 1" = 50'

VERT SCALE 1" = 10'

K D. SPRAGGS
NOVEMBER 1983



~~Bureau of Land~~ Management
Great Falls Resource Area
RECEIVED
NOV 18 1983
Great Falls, Montana

AMERICAN PETROFINA COMPANY OF TEXAS

PLAN SHOWING RIG AND
SUPPORTING EQUIPMENT + FACILITIES
APCOT - AGIP FEDERAL SO GLACIER

SCALE 1" = 50'

oilind
SAFETY
DIVISION OF TCO RESOURCES CORP.
Great-West Life Tower • Suite 2030 • 1675 Broadway • Denver, Colorado 80202 • (303) 825-1506

HYDROGEN SULFIDE CONTINGENCY PLAN

American Petrofina Company
of Texas

SE of the NE Sec. 26 T30N R13W
Glacier County, Montana
"APCOT Federal # 1-26"

Bureau of Land Management
Great Falls Resource Area
RECEIVED
NOV 18 1983
Great Falls, Montana

Proprietary/Confidential Information
U. S. Gov't Use Only

660' From the East Line
1980' From the North Line

PURPOSE OF PROGRAM
OPERATING PROCEDURES
PROCEDURE PROGRAM
H2S EMERGENCY PROCEDURES
IGNITING THE WELL
PHONE NUMBERS

TABLE OF CONTENTS

1. GENERAL 1

   - H_2S Table of Toxicity 2
   - H_2S First Aid Procedures 4

2. PURPOSE OF PROGRAM 7

3. OPERATING PROCEDURES 8

4. PROCEDURE PROGRAM 11

5. H_2S EMERGENCY PROCEDURES 13

6. IGNITING THE WELL 14

7. EQUIPMENT LIST 17

8. EMERGENCY PHONE NUMBERS 18

   - AREA RESIDENTS
     AND/OR ANY FREQUENT USERS OF THE TWO
     MILE RADIUS

9. MAPS, ECT. . . . . Attachments

GENERAL

DESCRIPTION OF HYDROGEN SULFIDE GAS:

H_2S is a colorless gas which smells similar to rotten eggs in low concentrations. In large concentrations or over long periods of exposure, the sense of smell may be paralyzed. H_2S is extremely toxic gas that must be treated with extreme care to prevent injury to people. H_2S is heavier than air (specific gravity = 1.19) and on still days tends to accumulate in low places. This accumulation could build up and lead to dangerous concentrations. However, if the H_2S gas is warmer than air, it will tend to rise until cooled off and could affect workers above the escaping source.

TOXICITY

Hydrogen Sulfide is extremely toxic (poisonous). It is almost as toxic as hydrogen cyanide. It produces irritation to the eyes, throat and respiratory tract. The sense of smell can be lost in 2 - 15 minutes in low concentrations due to paralysis of the olfactory nerve. The sense of smell can be lost in 60 seconds or less, at higher concentrations. Susceptibility to H_2S poisoning varies according to the number of exposures. The second exposure being more dangerous that the first.

The result of inhalation of H_2S may be strangulation in a few seconds of exposure to high H_2S concentrations. This produces symptoms such as panting, pallor, cramps, paralysis of the pupil, and loss of speech. This is generally followed by immediate loss of consciousness. Death may occur quickly from respiratory and cardiac paralysis. One deep sniff of high concentration can cause death. Coughing, eye burning and pain, throat irritation, and sleepiness come from exposure to low concentrations.

The two following charts list some of the toxic characteristics of H_2S.

(SEE FOLLOWING PAGE)

TOXICITY OF HYDROGEN SULFIDE GAS

	Grains/100 Std. Cu. Ft.	
10 ppm = 1/1000 of 1%	0.65	Can Smell Safe for 8 hours exposure
100 ppm = 1/100 of 1%	6.48	Kills Smell in 3 to 15 minutes May Sting Eyes and Throat
200 ppm = 2/100 of 1%	12.96	Kills Smell Shortly Stings Eyes and Throat
500 ppm = 5/100 of 1%	32.96	Loses Sense of Reasoning and Balance Respiratory Paralysis in 30 to 45 minutes Needs Prompt Artificial Resuscitation Will Become Unconscious Quickly (15 minutes maximum)
700 ppm = 7/100 of 1%	45.36	Breathing Will Stop and Death Result if not Rescued Promptly Immediate Artificial Resuscitatic
1,000 ppm = 1/10 of 1%	64.80	Unconscious at Once PERMANANT BRAIN DAMAGE MAY RESULT UNLESS RESCUED PROMPTLY

TOXICITY OF HYDROGEN SULPHIDE TO MEN

H_2S PER CENT (PPM)**	0-2 MINUTES	2-15 MINUTES	15-20 MINUTES	30 MINUTES 1 HOUR	1-4 HOURS	4-8 HOURS	8-48 HOURS
0.005(50) 0.020(100)				Mild Conjunctivitis; respiratory tract irritation			
0.010(100) 0.015(150)		Coughing; irritation of eyes; loss of sense of smell	Disturbed respiration; pain in eyes Sleepiness	Throat irritation	Salivation and mucuous discharge; sharp pain in eyes; coughing	Increased symptoms*	Hemorrhaging and death
0.015(150) 0.020(200)		Loss of sense of smell	Throat and eye irritation	Throat and eye irritation	Difficult breathing; blurred vision; light shy.	Serious irritating effects	Hemorrhaging and death
0.025(250) 0.035(350)	Irritation of eyes; loss of sense of smell	Irritation of eyes	Painful secretion of tears; weariness	Light shy; nasal catarrh pain in eyes; difficult breathing	Hemorrhage and death*		
0.035(350) 0.045(450)		Irritation of eyes; loss of sense of smell	Difficult respiration coughing; irritation of eyes	Increased irritation of of eyes and nasal tract; dull pain in head; weariness; light shy	Dizziness; weakness; increased irritation; death	Death*	
0.050(500) 0.060(600)	Coughing; collapse and unconsciousness	Respiratory disturbances; irritation of eyes;collapse	Serious eye irritation; palpitation of heart;few cases of death*	Severe pain in eyes and head; dizziness; trembling of extremities; great weakness and death*			
0.060(600) 0.070(700)	Collapse* unconsciousness;	Collapse* unconsciousness;					
0.080(800) 0.100(1000) 0.150(1500)	death*	death*					

* Data secured from experiments of dogs which have a susceptibility similar to men. ** PPM - parts per million

H_2S FIRST AID PROCEDURES

TREATMENT

1. Victim should be removed to fresh air immediately by rescuers wearing respiratory protective equipment. Protect yourself while rescuing.

2. If the victim is not breathing, begin immediately to apply artificial respiration. (See page 6 for the chances for life after breathing has stopped.) If a resuscitator is available let another employee get it and prepare for use.

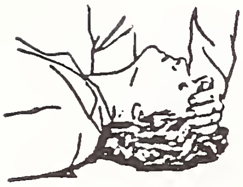
3. Treat for shock, keep victim warm and comfortable.

4. Call a doctor. In all cases, victim of poisoning should be attended by a physician.

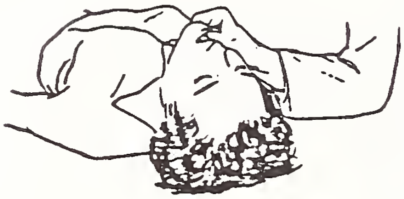
ARTIFICIAL RESPIRATION

Recommended by the American National Red Cross

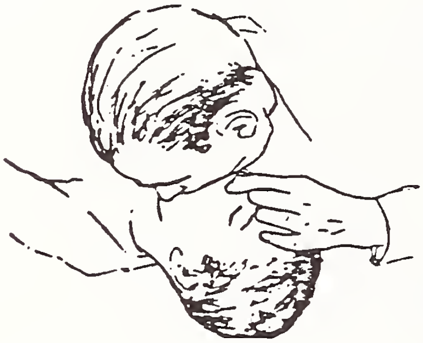
①



②



③



If victim is not breathing, begin some form of artificial respiration at once. Wipe out quickly any foreign matter visible in the mouth, using your fingers or a cloth wrapped around your fingers.

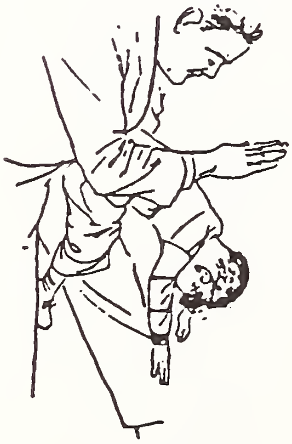
Mouth-to-Mouth (Mouth-to-Nose) Method

Tilt victim's head back (Fig. 1). Pull or push the jaw into a jutting-out position (Fig. 2).

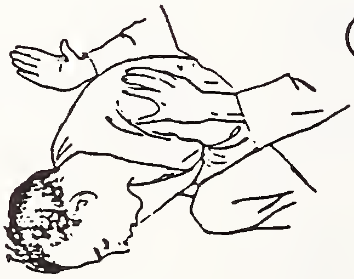
If victim is a small child, place your mouth tightly over his mouth and nose and blow gently into his lungs about 20 times a minute. If victim is an adult (see Fig. 3), cover the mouth with your mouth, pinch his nostrils shut, and blow vigorously about 12 times a minute.

If unable to get air into lungs of victim, and if head and jaw positions are correct, suspect foreign matter in throat. To remove it, suspend a small child momentarily by the ankles or place child in position shown in Fig. 4, and slap sharply between shoulder blades.

If the victim is adult, place in position shown in Fig. 5, and use same procedure.



④



⑤

DO YOU KNOW

THERE IS NO TIME TO WASTE
WHEN BREATHING STOPS!

RESCUE BREATHING MUST
BE STARTED FAST!!

After Breathing is Stopped for:	The Chances for Life are:
1 Minute	98 out of 100
2 Minutes	92 out of 100
3 Minutes	72 out of 100
4 Minutes	50 out of 100
5 Minutes	25 out of 100*
6 Minutes	11 out of 100*
7 Minutes	8 out of 100*
8 Minutes	5 out of 100*
9 Minutes	2 out of 100*
10 Minutes	1 out of 100*
11 Minutes	1 out of 1,000*
12 Minutes	1 out of 10,000*

* Irreparable brain damage starts at about the fifth minute.

LEARN HOW TO USE

LIFE SAVING EQUIPMENT

HYDROGEN SULFIDE CONTINGENCY PLAN

For: American Petrofina Co. of Tx
APCOT Federal #1-26
SE NE Sec.26 T 30N R 13W
Glacier Co., Montana

This plan provides for personnel safety programs, precautionary measures, safety equipment and emergency procedures, and sets forth responsibilities and duties pertaining to drilling in a sour gas area.

To be effective, the plan requires the cooperation and effort of each person participating in the drilling of an H2S well. Each person must know his responsibilities and duties in regard to normal drilling operations as well as emergency and safety procedures. He should thoroughly understand and be able to use with accuracy all safety equipment while performing his normal duties, if the circumstance should arise. He should therefore familiarize himself with the location of all safety equipment and check to see that it is properly stored, easily accessible at all times, and routinely maintained.

It is the intention of the American Petrofina Co. of Tx. and the drilling contractor to make every effort to provide adequate safeguards against harm to persons on the rig and in the immediate vicinity from the effects of hydrogen sulfide, which may be released into the atmosphere under emergency conditions. However, the initiative rests with the individual in utilizing the safeguards provided.
The ideas and suggestions of the individuals involved in the drilling of these wells are highly welcomed and act as a fundamental tool for providing the safest working conditions possible.

The drilling foreman is required to enforce these procedures. They are set up for your safety and the safety of all others.

PURPOSE

It is American Petrofina Co.'s intent to provide provide a safe working place, not only for its employees, but also for those of other firms who are aiding in the drilling of this well.

There is a possibility of encountering toxic hydrogen sulfide gas. Safety procedures must be adhered to in order to protect all personnel connected with the operation, as well as people living within the area.

American Petrofina Company of Texas's drilling foreman must enforce what may seem to be stringent requirements. This job will become easier by a careful study of the following pages and the use of COMMON SENSE.

OPERATING PROCEDURES

GENERAL

Before this H2S contingency plan becomes operational, the drilling contractor's personnel, necessary service company personnel, and the operator's personnel shall be thoroughly trained in the use of*breathing equipment, emergency procedures, responsibilities and first aid. American Petrofina Co. of Tx shall have a list of all personnel who have been through the special training programs on the drill site. This list shall be supplied by the safety company as personnel are trained.

*THROUGHOUT THIS CONTINGENCY PLAN, BREATHING APPARATUS SHALL BE UNDERSTOOD TO MEAN: 1) SCOTT PRESSURE-DEMAND SELF-CONTAINED AIR BREATHING APPARATUS (Scott Presur-PakII/Back-Pac Style) OR 2) SCOTT SKA-PAX EMERGENCY ESCAPE UNIT (Hip-Pac).

PRIOR TO SPUD

The area within a two mile radius will be checked and phone numbers of residents will be recorded.

A list of emergency stations and phone numbers of American Petrofina Co. of Tx's personnel to be contacted in case of an emergency will be posted at the following locations:

1. American Petrofina Co. of Tx Drilling Foreman's trailer on the rig.
2. Drilling Contractor's Toolpusher Office.

All safety equipment and H2S related hardware must be set up as required by American Petrofina Co. of Tx, such as location of briefing areas, breathing equipment and etc. All safety equipment must be inspected periodically with particular attention to resuscitators and breathing air facilities.

All personnel on the drill site will be assigned breathing apparatus and if needed, lead acetate ampules. Operator and drilling contractor personnel required to work in the following areas will be provided with breathing equipment connected to a cascade bottled air supply.

A. rig floor
B. mud pit
C. derrick
D. shale shaker
E. mud hopper and bulk hopper
F. any location that anyone will have to work in H2S.

All service companies to be needed on the drill site will be notified of the potential hazard and will furnish safety equipment for their personnel. No service company employee will be allowed to work on the drill site without having breathing equipment.

The Oilind Safety advisor will be responsible for rigging up and monitoring all H2S continuous recording monitoring-type detectors. These units must be tested and, if necessary as required recalibrated by the Oilind advisor during drilling conditions. In the event that H2S is detected, or when drilling in a zone containing H2S, the units will be tested at least once every 12 hours.

DRILLS

Drills will be held as often as necessary to acquaint the crews and service company personnel with their responsibilities and the proper procedures to shut-in a well. After American Petrofina Co. of Tx's drilling foreman is satisfied with drill procedures, a drill will be conducted periodically with each crew.

An Oilind Safety advisor will be on duty when drilling begins or as otherwise deemed necessary. He will conduct safety talks and drills, maintain the safety equipment, and advise and carry out the instructions of the drilling foreman. All personnel allowed on the drill site during drilling or testing operations will be instructed in the use of breathing equipment until supervisory personnel are satisfied that they are capable of using it.

After familiarization, each rig crew should perform a drill with breathing equipment. The drill should include getting the breathing equipment, putting it on, and a short work period. A record shall be kept of the crew members drilled and the date of the drill.

Rig crews and service company personnel shall be made aware of the location of spare air bottles, the resuscitation equipment, portable fire extinguishers, and H2S detectors. Knowledge of the location of the H2S monitor is vital in determining a sour gas location and the severity of the emergency situation. In addition, key personnel shall be trained in the use of a resuscitator.

H2S detector ampules shall be available for use by all working personnel. After H2S has been initially detected by any device, periodic inspections of areas of poor ventilation shall be made with a portable H2S detector instrument.

PROCEDURE PROGRAM

SAFETY PROGRAM

A. DRILL SITE

1. The drilling rig should be located to allow prevailing winds to blow across the rig toward the reserve pit.
2. Briefing stations will be provided with a safety equipment trailer at one or more stations. Personnel will assemble at the most upwind station under alarm conditions, or when so ordered by American Petrofina Co. of Tx's foreman or the Oilind Safety advisor. Wind socks or streamers will be located for easy view from the rig floor and around the location.
3. Warning signs will be posted on the access road to the location. "NO SMOKING" signs will be posted as well.
4. Swabbing or drillstem testing fluids containing H2S be through a separator to permit flaring of gas. There will be a pilot light for any possible flared gas.

5. One multi-channel automatic H2S monitor will be provided by Oilind Safety and the detector heads will be at the shale shaker, bell nipple, mud hopper, and the rig floor. Should the alarm be shut off to silence the siren, the blinker light must continue to warn of H2S presence. The safety representative will continuously monitor the detectors and will reactivate the alarm, if H2S concentrations increase to a dangerous level.

6. An escape road should be provided which is to be used only in an emergency.

7. Explosion proof electric fans (bug blowers) will be positioned to insure adequate circulation at all critical locations if necessary.

8. If available, commercial telephone service will be provided.

9. A rig intercommunication system will be provided.

10. Road barricades will be used if necessary to block access to the location at all entrances at a safe distance from the well site. Under critical drilling and testing operations, gate guards will be used.

B. GENERAL

1. The American Petrofina Co. of Tx's drilling foreman, residing at the well site, will have complete charge of the rig operation and will take whatever action is deemed necessary to insure personnel safety to protect the well, and to prevent property damage.

2. An Oilind Safety advisor should be on location at all times when drilling at the depth H2S may be expected.

H2 S EMERGENCY PROCEDURES

The emergency procedures outlined in this section will be implemented under the following operating conditions:

CONDITION EXTREME DANGER TO LIFE

If, at any time, as much as 20 ppm of H2S is detected, the following steps will be taken:

A. The driller shall shut down mud pumps and put on his mask.

B. The following personnel shall immediately put on their breathing equipment:

   1. All personnel on the rig floor
   2. All personnel at the mud pits.
   3. All personnel required to work below and down wind of the rig floor.

C. Notify the American Petrofina Co of Tx's drilling foreman and toolpusher that you have H2S on the monitoring system.

D. The mud engineer shall run a sulfide determination from the mud flowline.

E. Immediately begin to ascertain the source of the H2S and take steps to suppress the H2S. Drilling will not proceed until the source is determined and the well is circulated. Rig floor and mud pit personnel will keep breathing equipment on while monitoring this circulation.

F. The supervisors shall make sure all non-essential personnel are out of the potential danger areas. All persons who remain in potential danger areas must utilize the "Buddy System".

G. Have all personnel to check their safety equipment to see that it is working properly and in the proper location.

H. Check all gas monitoring devices and increase gas monitoring activities with the portable hand operated H2S and gas detector units.

DO NOT PANIC ! ! !

The American Petrofina Co. of Tx's drilling foreman will assess the situation and assign duties to each person to bring the situation under control.

EMERGENCY PROCEDURES AT THE DRILLING RIG

When the H2S monitors activate the siren and blinker light, toxic gas is present. DO NOT PANIC ! ! !

A. Put on Your Gas Mask !
B. Render Assistance !
C. Follow Instructions !

IGNITING THE WELL

A. RESPONSIBILITY

1. The decision to ignite the well is the responsibility of the American Petrofina Company of Tx's drilling foreman.

In his absence or incapacity, the contractor's toolpusher will assume his responsibilities. In their absence or incapacity, the contract driller will be in charge.

2. The decision to ignite the well is to be made as a last resort when it is clear that . . .

   a. There is a definite threat to human life and property.

   b. There is no hope of containing the well under prevailing conditions.

   c. Time and circumstances permitting, an attempt should be made to notify the area office. If human life is threatened, the decision must not be delayed.

B. INSTRUCTIONS FOR IGNITING THE WELL

1. Two people are required for the actual igniting operation. Both men will wear self-contained breathing units and will have 200 foot retrieval ropes tied around their waists. One man is responsible for checking the atmosphere for explosive gases with an explosion meter. The other is assigned special duties within the "Safe Briefing Area". Those in the "Safe Briefing Area" will be alert to the needs of the two men assigned to ignite the well. Should either of these men be overcome by fumes, they will immediately pull him to safety by the retrieval ropes.

2. The primary method for ignitng the well is a 25 mm metortype flare gun. It has a range of approximatley 500 feet. If this method fails or well conditions are such that a safer or better method is apparent, then the alternate should be used.

3. If the well is ignited, the burning hydrogen sulfide will be converted to sulfer dioxide which is also poisonous. Therefore, DO NOT ASSUME THAT THE AREA IS SAFE AFTER THE GAS IS IGNITED. CONTINUE TO OBSERVE EMERGENCY PROCEDURES AND FOLLOW THE INSTRUCTIONS OF SUPERVISORS.

CHECK LIST FOR HYDROGEN SULFIDE DRILLING

H_2S warning signs

Resuscitators

Contour map of 2 mile radius area (with wind direction noted)

Map noting location of houses, roads, etc.

List of persons to be evacuated in emergency

Wind socks and poles

Telephone service for rig

List of phone numbers - Sheriff, Ambulance, Hospitals, Doctor

Pressure demand work and rescue packs

Spare 300 cubic foot cylinders and cascade manifold system for recharging work and rescue packs

Hand operated H_2S detectors

Audio and visual alarm system

Additional location lighting

BOP's dressed for H_2S service

Choke manifold for H_2S service build and annealed in shop

Briefing areas

Sulphur Dioxide detector

First aid kits, additional

Cleaning material for air masks

Flare gun and shells

H_2S inhibitors or scavengers for mud system

Four channel continuous H_2S monitor with sensor probes at the shale shaker, bell nipple, mud hopper and one channel for testing.

Explosion proof electric ventilating fans

EQUIPMENT

Hydrogen Sulfide Respiratory Drill Site Unit

1	Safety trailer with a cascade system of 15-300 cu.ft. bottles of compressed breathing air complete with high pressure manifolds
5	40 cu.ft. self contained breathing apparatus (SCOTT)
9	Airline breathing apparatus complete with 7 cu.ft. egress cylinders
1	Resuscitator or inhalator
1	H_2S pump type gas detector
12	1/4" breathing air hose with quick connects
300'	3/4" breathing air hose low pressure
2	Wind Socks
1	Flare gun with cartridges
1	Stretcher
1	First Aid Kit
2	H_2S warning signs
1	4' x 4' condition code warning sign with warning flags
1	Eyewash Station
1	Three channel continuous H_2S monitor c/w sensing heads and cables
1	Siren - Explosion Proof
1	Warning Light - Explosion Proof

NOTE: Also know, equipment will be supplied to satisfy the number of people on location at any one time.

SEP 2
Great Falls,

EMERGENCY NOTIFICATION

LOCAL OFFICIAL AND MEDICAL

CUT BANK, MONTANA

AMBULANCE	(406) 911 Emergency (406) 873-2288
HOSPITAL	(406) 873-2251
DOCTOR (On Call At Hospital's E.R.)	(406) 873-2251
SHERIFF	(406) 911 Emergency (406) 873-2711
HIGHWAY PATROL	(406) 873-2112
FIRE	(406) 911 Emergency (406) 873-2288
HELICOPTER Bicsak Ambulance Great Falls	(406) 727-6500

BROWNING, MONTANA

AMBULANCE	(406) 338-5555
HOSPITAL	(406) 338-6154
DOCTOR (On Call At E.R. Room)	(406) 338-6154
FIRE	(406) 338-2344

OTHER SERVICES

GOVERMENT

Bureau of Land Management	(406) 727-0503
Blackfeet Natural Resources	(406) 338-7887

EMERGENCY NUMBERS

AMERICAN PETROFINA COMPANY OF TEXAS

Wichita Falls, Texas

R.M. Albers

Office:	817/ 322-3115
Home:	

Winnie Cunningham

Office:	817/ 322-3115
Home:	

Mack Tillman

Office:	817/ 322-3115
Home:	

Snowcap Energy Inc.

CONSULTANT

Ken Spraggs

Office:	303/ 232-8377
Home:	526-0840

RIG

Mulen Drilling Rig #5

OILIND SAFETY

Williston, ND Office:	701/ 572-2071 (24 Hr. Serv.)
Gerry Haugjorde	
Dave Schubert	

Evanston, WY Office:	307/ 789-9791 (24 Hr. Serv.)
Wes Tingey	
Ross Argyle	

Denver, Co Office:	303/ 825-1506 (24 Hr. Serv.)
Rob Clark	
Bill Myers	

EMERGENCY NUMBERS

Continued...

GLACIER COUNTY, MONTANA	AREA CODE 406
CUTBANK	
Glacier County Sheriff	406/ 873-2711
Ambulance	873-2711
Police Dept.	873-2288
Fire Dept.	911
Hospital	873-2251
Veterinarian Dr. Gary Castle	873-5604
Montana Highway Emergency Patrol	245-6193

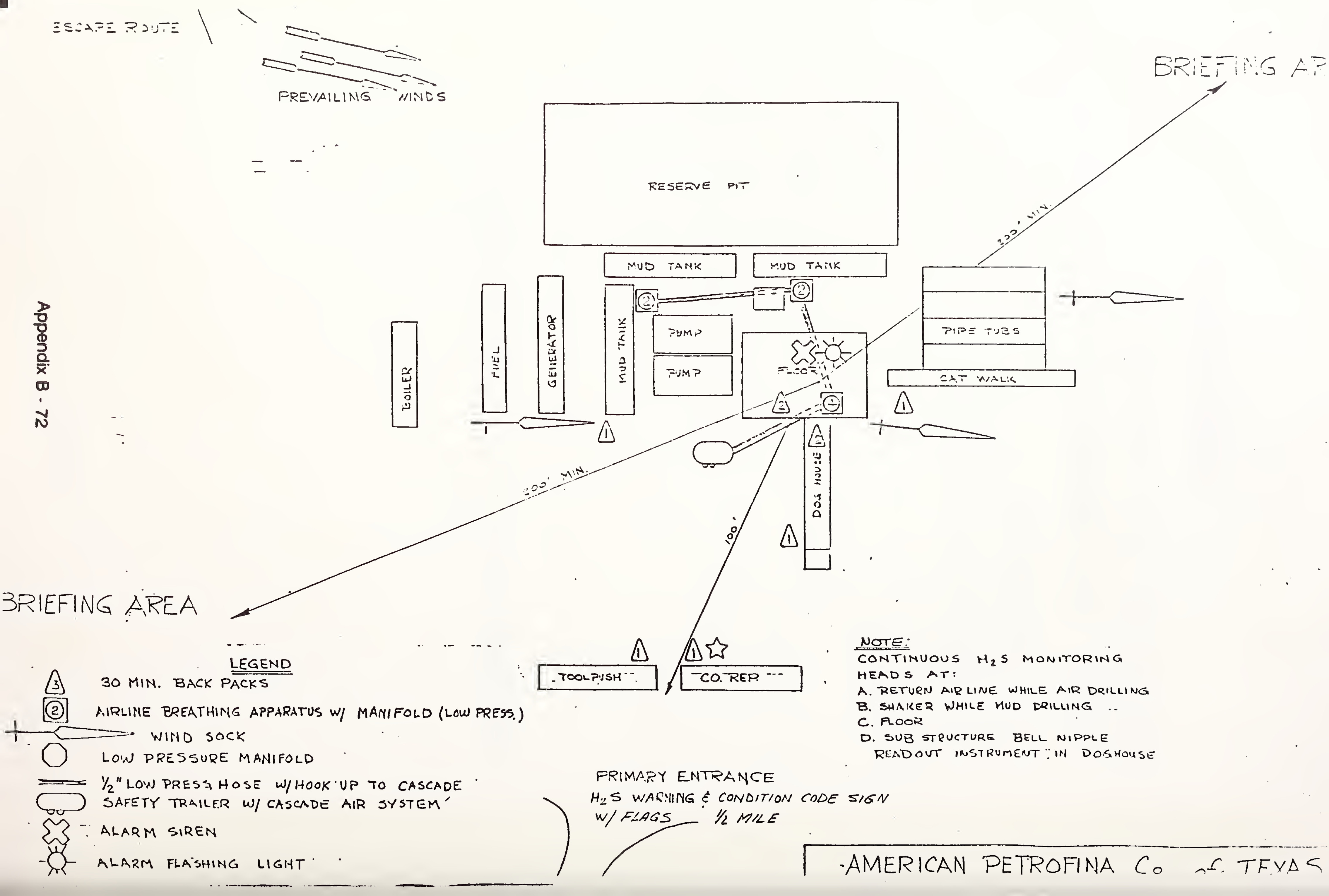
EMERGENCY NUMBERS

AREA RESIDENTS (If any within two mile radius)

THE TWO MILE RADIUS AROUND THE WELL SITE WILL BE CHECKED FOR:

1) Area Residents
2) Livestock Operations
3) Any persons that might have a reason to come into the area.

STOCK OWNERS (If any within a two mile radius)



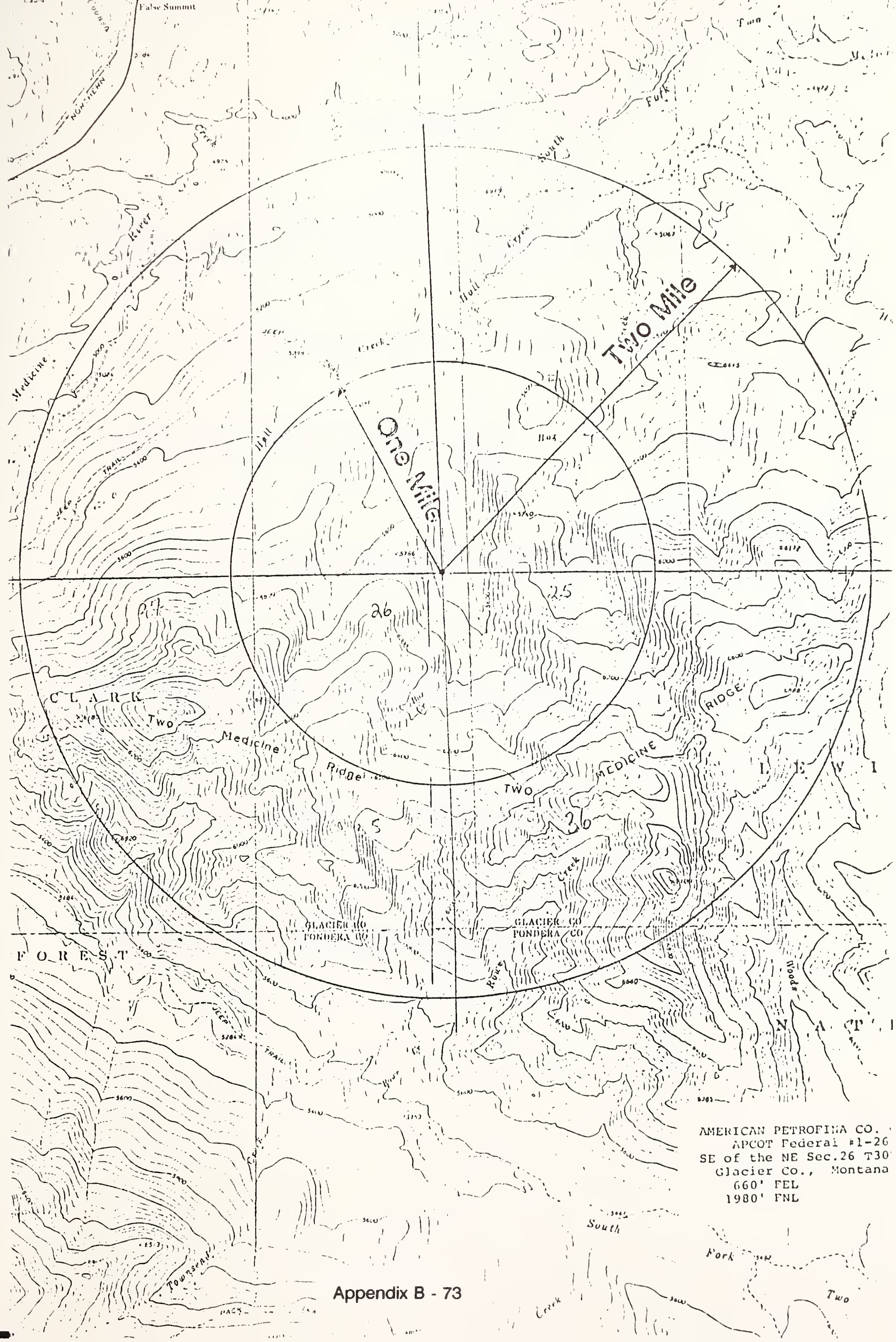
LEGEND

- △3 30 MIN. BACK PACKS
- ⓶ AIRLINE BREATHING APPARATUS W/ MANIFOLD (LOW PRESS.)
- WIND SOCK
- ○ LOW PRESSURE MANIFOLD
- ═ ½" LOW PRESS HOSE W/ HOOK UP TO CASCADE
- SAFETY TRAILER W/ CASCADE AIR SYSTEM
- ✕ ALARM SIREN
- ☼ ALARM FLASHING LIGHT

PRIMARY ENTRANCE
H_2S WARNING & CONDITION CODE SIGN
W/ FLAGS ½ MILE

NOTE:
CONTINUOUS H_2S MONITORING HEADS AT:
A. RETURN AIR LINE WHILE AIR DRILLING
B. SHAKER WHILE MUD DRILLING
C. FLOOR
D. SUB STRUCTURE BELL NIPPLE
READOUT INSTRUMENT IN DOGHOUSE

AMERICAN PETROFINA Co of TEXAS



AMERICAN PETROFINA CO.
APCOT Federal #1-26
SE of the NE Sec.26 T30
Glacier Co., Montana
660' FEL
1980' FNL

APPENDIX C

LEWIS AND CLARK NATIONAL FOREST PLAN DIRECTION

The following Forest Plan information is included in this appendix:

- Forestwide Management Standards - Minerals (reference pages 2-53 to 2-59 in Forest Plan — Page C-1

- Management Prescription Map - RM-1 Geographic Unit (reference pages 4.4 in Forest Plan) — Page C-6

- Management Prescription for Management Area E (reference pages 3-27 through 3-37 in Forest Plan) — Page C-7

- Management Prescription for Management Area F (reference pages 3-32 through 3-35 in Forest Plan) — Page C-12

- Management Prescription for Management Area G (reference pages 3-36 through 3-39 in Forest Plan) — Page C-17

G-1 - Seismic Exploration

The following standards are the basis for specific clauses to be attached to seismic prospecting permits. They have been developed over a four year period on the Rocky Mountain Division where over 700 miles of seismic prospecting has been conducted. They are based on the "Environmental Assessment on Geophysical Exploration on Nonwilderness Lands." Applications for seismic exploration will receive additional analysis as required by NEPA tiering to the FEIS and Forest Plan.

(1) Conduct all operations with regard for good land management. Avoid unnecessary damage to improvements and prevent pollution of soil, water, and air resources.

(2) Require seismic charges to be placed outside the riparian area, a perennial stream or lake. Seismic activities will avoid wetland (mostly landtype 201). Proposed activities that would impact floodplains and wetlands will meet requirements of Executive Orders 11988 and 11990. Do not detonate charges within 1/4 mile of any developed recreation area, residence, or resort, unless otherwise noted.

(3) Rehabilitate all areas of excessive surface disturbance caused by the permittee's operations, as prescribed by Management Standard F-3, Soil and Water Protection. Fully repair any damage resulting from exploration operations to trails, roads, or other improvements.

(4) Plug all seismic drill holes with Forest Service approved material.

(5) Prohibit vehicle travel when road conditions are wet enough to cause damage to the road bed.

(6) Use only existing roads for seismic activity. No new roads will be constructed.

(7) Prohibit surface charges from being placed on the ground. All such charges shall be situated to prevent soil and vegetation damage. Generally a maximum of five pounds of explosives will be allowed on one lath. Should a company propose other charge sizes, they would be required to present data or show by example that the surface disturbance associated with the proposed method is minimal. Require the primacord between charges be taut. Kinks, droops, and contact with the ground are not allowed. Contact with vegetation shall be avoided.

(8) Store and handle explosives in compliance with Federal, State, and local rules and regulations. No surface charges or loaded holes will be left unattended or unprotected. Notify the Forest Service and the county sheriff immediately, if explosives are lost or stolen. Use only no-flash or fire retardant explosives. Attach the Fire Plan to all permits.

(9) Provide for public safety by requiring that the permittee post signs when blasting is to occur within one mile of all developed and used trails. Signs will be posted at the next trail junction back from the blast zone, allowing Forest users to take an alternative route. Require than an observer be stationed on each end of a shot, to stop and warn Forest users.

(10) Avoid helicopter travel over Glacier National Park, wildernesses, hunter camps, developed recreation areas, residences, and resorts. Require that helicopter routes be offset 1/4 mile, where terrain permits, from any opened trail.

(11) Require helicopters to follow flight corridors paralleling seismic lines or routes approved in writing. Corridors from staging areas to the seismic lines will also be designated. Corridors should generally not exceed one half mile in width. However, during periods of adverse flying conditions or emergencies, flight routes will be selected by the pilot.

(12) Authorize directional movement along a seismic line only, with approval from the District Ranger. To minimize the flight along a line, helicopter supported surveys generally should begin at the end of the line away from the main landing zone or staging area and work back, towards the staging area. Consolidate helicopter trips to minimize effect on wildlife.

(13) Authorize helicopter landing sites which involve cutting live vegetation only upon approval from the District Ranger.

(14) Protect T&E wildlife species through compliance with the Endangered Species Act. Use the Interagency Guidelines to avoid or mitigate conflicts with seismic exploration and T&E species (Appendix I).

(15) Use the Interagency Guidelines to avoid or mitigate conflicts with seismic exploration and other wildlife species (Appendix I).

(16) Do not permit seismic activity at least two days before and during the general big-game hunting season to minimize disturbance to wildlife and hunting opportunity.

(17) Temporarily suspend or reschedule activities, as necessary, to prevent conflicts with concentrated, dispersed, and developed recreation during heavy use periods or on weekends.

(18) Require the permittee to conduct operations as prescribed to protect paleontological or cultural resources.

(19) Require the permittee to appoint and maintain at all times during the term of a permit a local agent who may be served written notices regarding the permit and who will have full authority to act for the permittee.

(20) The seismic party manager and the District Ranger or representative will agree to all items in the permit and review the permit before commencing operations.

(21) Require the local agent to notify the District Ranger when operations are to begin or are completed on National Forest lands. During operations on the Forest, the local agent will notify the District daily as to the location of activities (telephone contact is sufficient). The permittee should receive prior approval for beginning activity on each individual line.

(22) Receive prior approval before making any deviation from the approved permit, such as adjustment of survey routes.

(23) Within 15 days after completion of the exploration project, revocation of the permit, or permit expiration, the permittee will furnish the District Ranger a certified copy of the operation log or survey plat showing the exact location and number of shotpoints, and redrilled seismic holes and/or miles of line utilized.

G-2 - Oil and Gas Leasing, Exploration Drilling, Field Development, and Production

The following standards were developed from the Environmental Assessment on Oil and Gas Leasing, Nonwilderness Lands, Lewis and Clark National Forest. These standards provide for exploration and development of oil and gas resources while protecting other resource values. To date, over 423,000 acres have been leased. When the existing leases on the Forest expire, the issuance of new leases will be based on an analysis of current information, including oil and gas potential, as well as the Forest Plan goals and management objectives which were developed in consideration of T&E and other wildlife habitat needs, water quality, soils and other resource values.

New leases and subsequent lease reissuance will undergo additional analysis as required by NEPA tiering to the FEIS and Forest Plan.

(1) Road construction will not normally be permitted on slopes greater than 60 percent. Drill pads will not normally be permitted on slopes greater than 40 percent. Exceptions to these slope restrictions on occupancy may be made when project analysis demonstrates that occupancy on steeper slopes is environmentally acceptable.

(2) Restrict occupancy within the floodplain or riparian area of streams and their tributaries that are classified as "highest value," "high value," and "substantial value" habitat for the Upper Missouri cutthroat trout or having a Fisheries Resource Value of 2 or better.

(3) Apply the "limited surface use stipulation" to the following landtypes (refer to Map 2 in Appendix L).

14B, 14C, 22, 25C
(Severe cut-bank failure potential)

14K, 23A, 25A, 25B, 41, 42, 177
(Moderate cut-bank failure potential)

(4) Minimize fire potential by applying standard stipulations and:

-- Adhere to Montana State Forest Fire Regulations.
-- Prohibit or limit activity during high fire danger periods.

(5) Protect existing uses and rights, such as powerlines, telephone lines, irrigation canals, and cemeteries by the no-surface occupancy stipulation.

(6) Conduct on-the-ground inventories for rare plant species before surface disturbing activities are permitted in landtypes cited as being in rare plant habitat. Minor road relocation could be required for protection of these species. (See Environmental Assessment on Oil and Gas Leasing, Nonwilderness Lands, Lewis and Clark National Forest, page 41, and Management Standard N-2, Rare Plants.)

(7) Protect cultural resources by implementing the standard stipulations.

(8) Notify the Blackfeet Tribe of all exploration drilling and development proposals within the Treaty Lands on the Rocky Mountain District (North End Geographic Unit, RM-1). This ensures compliance with the American Indian Religious Freedom Act.

(9) Protect T&E species through Section 7 of the Endangered Species Act (consultation procedures), the standard stipulations, the "Activity Coordination Stipulation", and the use of the Interagency Guidelines (Appendix I). Activity Coordination Analysis identify habitat components where surface occupancy must be restricted to prevent adverse effects on T&E species and their habitat.

(10) Apply wildlife habitat stipulations to leases, for the protection of important wildlife habitat according to the Interagency Guidelines (Appendix I). Not all important habitat is inventoried. Therefore, additional restrictions may result from the environmental analysis for a specific project proposal.

Vary the degree of restriction needed to protect wildlife depending on factors such as: (1) the species' sensitivity to human activity; (2) importance of the habitat element to maintaining population levels; and (3) the availability of alternative habitat.

Use no-surface occupancy stipulations when more than one species uses the habitat and the combined seasons of use leave no opportunity for oil and gas occupancy.

(11) Follow Management Standard L-4, Maintenance and Construction of Roads, Trails, and Other Facilities, when constructing roads, drill pads, or pipelines.

(12) Construct roads according to the transportation corridors identified on Geographic Unit Maps (See Chapter IV). Roads to serve oil and gas exploration will be built to a standard commensurate with the site and duration of the project. Road design should consider the possibility of increasing the road width in the event of field development.

Roading specifications for location, design, construction, maintenance and rehabilitation of oil and gas roads will be based on the Proposed Guidelines for Oil and Gas Developed for the Northern Region (Hadley, 1983).

(13) Evaluate roads constructed for oil and gas exploration and development as to their value in managing surface resources. Depending on the management area prescription, the road may be opened to public use, retained for administrative use, or obliterated by removing drainage structures and associated fill dirt from stream channels. (See Chapter IV).

(14) Follow Management Standard F-3, Soil and Water Protection, in site preparation and reclamation.

(15) Implement, as needed, monitoring programs to ensure compliance with the preceding guidelines and other management guidance. As a minimum the monitoring would include wildlife, cultural resources, water quality, and effectiveness of road closures.

G-3 - Mineral Withdrawal

(1) Relinquish existing mineral withdrawals that are no longer needed. Review of existing withdrawals shall be completed not later than FY 1990. (Also see Chapter VII, Minerals.)

(2) Use withdrawal only where protection is definitely needed and cannot be achieved through other management options.

(3) Criteria to be used in evaluating existing and proposed withdrawals include: (a) Is the land still being used for the purpose for which it was withdrawn? (b) Are there other ways available to protect the resource values (for instance, existing statutes and regulations, rights of way, cooperative agreements)? (c) Are the values at risk of such a nature that a significant financial, social, or cultural loss could occur? and (d) Does the withdrawal area have a high mineral potential or are there nearby mining claims or mining activities?

G-4 - Energy Conservation

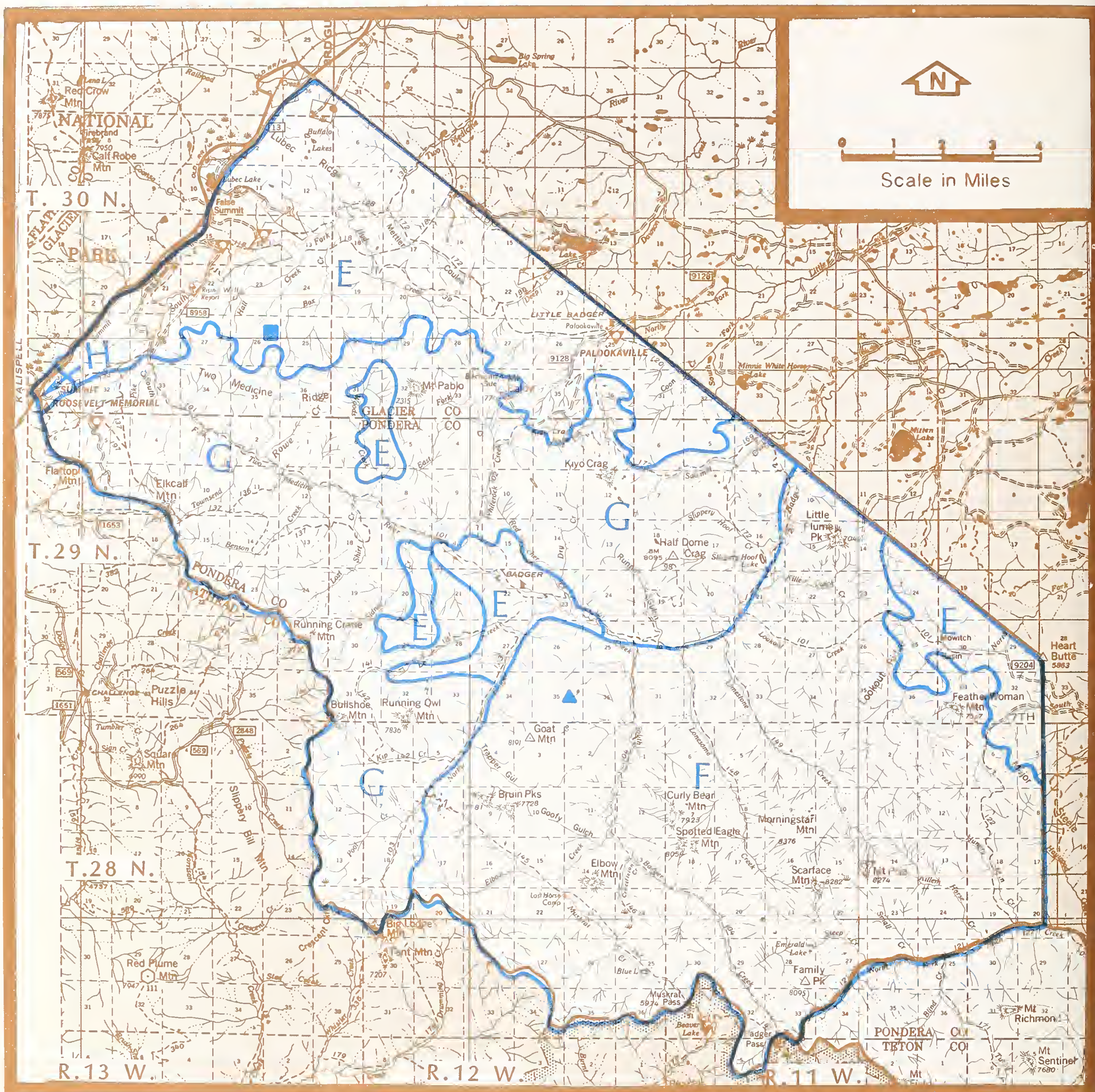
Conserve energy by conforming to the Regional Energy Management Plan. This plan presents alternatives for conservation in travel, facilities, and project related work. The Forest will implement those alternatives which meet the criteria of optimizing energy conservation with the least impact on resource outputs.

G-5 - Locatable and Common Variety Minerals

(1) Consistent with the Mining and Mineral Policy Act of 1970, continue to encourage the development of mineral resources on National Forest lands by private enterprise. Activities authorized under Notices of Intent, Plans of Operation, and mineral material permits will contain conditions and specifications appropriate to meet the intent of Standards G-1 and G-2; except, conditions may not be imposed on locatable mineral operations that are contrary to the surface use regulations for locatable minerals (36 CFR 228).

(2) Access to valid mining claims is guaranteed under the mining laws. However, the claimant/operator must be able to justify the need for a particular type of access. The type of access approved under 36 CFR 228 will be consistent with the next logical step in the development of the property involved. Access roads for mineral needs will be coordinated with the Forest Transportation Plan.

(3) Provide guidance to miners and prospectors for planning reclamation and to minimize surface disturbance.



LEGEND

▲ Chevron Well Site Location

■ Fina Well Site Location

(E) Management Areas

MAP C-1

MANAGEMENT AREAS

MANAGEMENT AREA E Management Area E (116,519 acres; 6.3 percent).

Description Nearly all of this management area occurs on big-game winter range and contains both grass and forested lands. The land is generally near the Forest boundaries.

Goal Provide sustained high level of forage for livestock and big game animals.

In addition to the Forest-Wide Standards in Chapter II, the following applies:

RESOURCE ELEMENT	MANAGEMENT DIRECTION
RECREATION	
Dispersed (AP2a)	Manage dispersed recreation settings and existing recreation improvements, prepare travel plans, and administer recreation special use permits.
Improvements (AP3c)	Improvements may consist of day use (occupancy spots), visitor information services, trailheads, parking facilities, and sanitation facilities.
Setting	The recreation setting is mostly roaded natural. Interaction between users may be low to moderate, but with evidence of other users prevalent. Resource activities will be evident, but will blend with the natural environment.
Visual Quality Objective	The VQO will usually be partial retention. Although the landscape is changed by resource activities, the natural appearance of the landscape remains dominant. The modification VQO is acceptable when activity is not visible from an arterial road. If the VQO is not met and the visual impacts can be classified as EVC 4 or greater, the site should be rehabilitated within 2 years to restore the landscape to at least an EVC Class 3. (See Appendix N.)
WILDLIFE	
Operation, Protection, and Maintenance (CW2b)	Maintain important identified wildlife habitat, including T&E habitat, big-game winter ranges, calving or lambing areas, migration routes, elk summer range, raptor nesting sites, and significant non-game habitat values.
Nonstructural Improvements (CW3b)	Coordinate prescribed burning and revegetation projects with range management. Jointly financed projects should be considered where feasible. Priority for funding is high.

Structural Improvements (CW3f)	Coordinate fencing and water developments with range management. Projects should be jointly financed where both resources benefit. Priority for funding will be high.

RANGE

Administration (DR2b)	Administer existing range permits, monitor range use, and cooperate with permittees in maintaining existing range improvements (range improvements will normally be on a 20-year replacement schedule). Prepare range allotment plans or other plans involving range management on a 10-year schedule. Continue to use and develop range agreements with other agencies or landowners. Priority for funding will be high.
Nonstructural Improvements (DR3a)	Use prescribed fire to control tree/shrub encroachment and to maintain or enhance forage production on range. Mechanical or chemical methods are also acceptable. Cooperate closely with other Federal and State agencies, individuals, contractors, and permittees to control noxious weed and pest infestations.
Structural Improvements (DR3d)	Build/rebuild improvements (fences, water developments) to increase and/or better distribute AUMs. Build/rebuild improvements to improve livestock distribution, in response to other resource values (wildlife, timber, recreation).

TIMBER

Unprogrammed (ET2)	Harvest unprogrammed amounts of forest products including Christmas trees, firewood, ornamentals, and miscellaneous wood products through administrative use, free use permits, salvage, and sanitation cutting.

SOIL AND WATER

Protection (FW2b)	Adhere to State water quality standards and maintain current soil productivity. Priority for funding will be moderate for structural or land treatments which maintain or rehabilitate watersheds or soil.

MINERALS

Development (GA3a)	Allow soil disturbing activities on environmentally suitable land. Where mineral activities are not compatible with present use, mitigate the effects through special lease stipulations. Design, locate, and, if necessary, reclaim roads and drill pads in compliance with the management area's goal.

The timing and location of exploration activities in relation to the use of key wildlife habitat determines the significance of disturbing or displacing wildlife. Timing restrictions will protect key wildlife habitat. (See Forest-Wide Guidelines G-1 and G-2).

Administration (GM2a)

Evaluate requests for mineral exploration and development. Administer geophysical prospecting and oil and gas through permits and leases, respectively. Administer locatable and common variety minerals through both Notices of Intent, operating plans, and mineral material permits.

LAND USE

Special-Use Permits (JL2a)

All new special-use permits must not conflict with the management area's goal. This management area is available for utility-transportation corridor allocation or facility siting.

ROADS

Management (LR2c)

Achieve low public access through permitting motorized use on all arterial and most collector roads. Although local roads could remain open, collectively the access provided would be restricted. Low access is defined as 0.5 - 1.5 miles of open road per square mile of area. Closures or restrictions may be used to: (1) resolve user conflict; (2) promote user safety; or (3) protect resources. Important identified wildlife habitat will be protected. Roads which cannot be maintained for motorized use may be restricted or closed. Closed roads may be occasionally opened for firewood gathering. (Also see Appendix O).

Roads constructed for mineral exploration and development will usually be closed to public use and obliterated when no longer needed. If the road is constructed for mineral exploration and development and opened for public use, mineral permit clauses will regulate use to minimize user conflicts. If the road is to be closed to public use, but maintained for administrative use, the permittee must leave it in a condition suitable for non-use maintenance.

Construction/ Reconstruction (LS10a)

Roads **opened** to public use will be located and constructed or reconstructed for economical resource management and safe public use. All resources should be protected.

Roads **closed** to public use will be located and constructed or reconstructed for the most economical resource management, while protecting soil and water resources.

Minerals Access (LS10b)

Construct or reconstruct mineral access roads to the minimum standard consistent with the intended long-range use of the roads. Use existing roads whenever possible.

MANAGEMENT PRESCRIPTIONS

TRAILS

Management (LT2b)	Open all areas and trails to ORVs, except where use is restricted by season, type of vehicle, or type of activity. Closures or restrictions may be used to: (1) resolve user conflict; (2) promote user safety; or (3) protect resources. Important identified wildlife habitat will be protected. (Also see Appendix O.)
Construction/ Reconstruction (LS11c)	Design trails to be compatible with the adjacent recreation settings. If a road provides the same access as a trail, during transportation planning the trail should be evaluated to determine whether it should be abandoned. Provide trailhead facilities as needed to facilitate safe access to the trail and obtain necessary rights-of-way to the National Forest.

PROTECTION

Suppression (PD8b)	The appropriate suppression response ranges from "control" to "confinement" in this management area depending upon location, expected fire behavior, and other decision logic criteria related to values at risk. This decision criteria will be stated in a Fire Management Action Plan. (See Appendix P for specific Fire Management Direction.)
Prescribed Fire (PS12a)	Prescribed fire with **planned** ignitions will be used in this management area for the enhancement and maintenance of resources. (See Appendix P for specific Fire Management Direction.)
Prescribed Fire (PS12b)	Prescribed fire with **unplanned** ignitions may be used in this management area for the enhancement and maintenance of resources, when within pre-established prescribed fire criteria. This criteria will be detailed in a Fire Management Action Plan. (See Appendix P for specific Fire Management Direction.)

SCHEDULE OF PRACTICES (Average Annual)

	Proposed Decade 1	Probable Decade 2
Wildlife (See Appendix M)		
CW3b (Nonstructural Habitat Improvements)	182 Acres	182 Acres
CW3f (Structural Habitat Improvements)	10 Structures	10 Structures
Range (See Appendix R)		
DR3a (Nonstructural Improvement)	334 Acres	334 Acres
DR3d (Structural Improvement)	2 Structures	2 Structures

All other practices are assumed to be implemented in the first decade and apply to all acres.

The following monitoring requirements apply to this management area. (See Chapter V.)

A-1, A-2, A-3, A-5, A-6, A-7, A-8, B-3, C-1, C-2, C-3, C-4, C-5, C-6, C-7, C-8, C-9, C-10, C-12, C-13, D-1, D-2, D-3, D-4, E-9, E-10, E-11, F-1, F-2, F-5, F-6, G-1, G-2, G-3, G-4, G-5, J-1, J-2, J-3, L-1, L-2, P-2, P-3, P-4, P-5, P-6, P-7, 1-1, 1-2, 1-3, 1-4.

The procedures outlined in Chapter V will be followed to evaluate the data gathered during monitoring.

MANAGEMENT AREA F

Management Area F (352,746 acres; 19.1 percent)

Description

Management Area F is undeveloped land with limited motorized access on existing roads and trails. The land is forested but contains much rock, some grassy inclusions, and is generally steep. Portions of the area are used by elk and livestock during the summer and fall seasons.

Goal

Emphasize semi-primitive recreation opportunities, while maintaining and protecting other Forest resources.

In addition to the Forest-Wide Standards in Chapter II, the following applies:

RESOURCE ELEMENT — MANAGEMENT DIRECTION

RECREATION

Dispersed (AP2a)

Manage dispersed area recreation settings and existing recreation improvements, and administer recreation special use permits. Cooperate with the BLM and Montana Fish, Wildlife, and Parks in the preparation of a coordinated management plan for the Smith River.

Improvements (AP3b)

Improvements may consist of trailheads, parking facilities, and sanitation facilities at the periphery of large undeveloped areas, or be limited to trailhead facilities along opened roads.

Setting

The setting is mostly semi-primitive, natural environment of moderate-to-large size. Concentration of users is low, but there is often evidence of other area users. Minimum on-site controls and restrictions may be present, but are subtle. Motorized use may be permitted.

Visual Quality Objective

The VQO will usually be retention or partial retention. Landscape changes will not be evident to the average person. Modification will not be appropriate in the management area.

If the VQO is not met and the visual impacts can be classified as EVC 3 or greater, the site should be rehabilitated within 1 year to restore the landscape to at least an EVC Class 2. (See Appendix N.)

WILDLIFE

Operation, Protection, and Maintenance (CW2b)

Maintain important identified wildlife habitat, including T&E habitat, big-game winter ranges, calving or lambing areas, migration routes, elk summer range, raptor nesting sites, and significant non-game habitat values.

Nonstructural Improvements (CW3c)

Improve habitat by prescribed burning and planting desirable forage on disturbed sites. Priority for funding will be moderate.

Structural Improvements (CW3f)	Coordinate fencing and water developments with range management. Projects should be jointly financed where both resources benefit. Priority for funding will be moderate.

RANGE

Administration (DR2c)	Administer existing range permits, monitor range use, and cooperate with permittees in maintaining existing range improvements (improvements will normally be replaced on a 20-year schedule). Prepare range allotment plans or other plans involving range management on a 20-year schedule. Continue to use and develop range agreements with other agencies or landowners. Priority for funding will be low.
Nonstructural Improvements (DR3a)	Use prescribed fire to control tree/shrub encroachment and to maintain or enhance forage production on range. Mechanical or chemical methods are also acceptable. Cooperate closely with other Federal and State agencies, individuals, contractors, and permittees to control noxious weed and pest infestations.
Structural Improvements (DR3e)	Build/rebuild improvements (fences, water developments) to improve livestock distribution and/or maintain existing AUMs, in response to other resource values (wildlife, recreation, timber).

TIMBER

Unprogrammed (ET2)	Harvest unprogrammed amounts of forest products including Christmas trees, firewood, ornamentals, and miscellaneous wood products through administrative use, free use, permits, salvage, and sanitation cutting.

SOIL AND WATER

Protection (FW2c)	Adhere to State water quality standards and maintain current soil productivity. Priority for funding will be low for structural or land treatments which maintain or rehabilitate watersheds or soil.

MINERALS

Development (GA3b)	Occupancy is allowed only where surface resources can be maintained during occupancy and the surface quality can be fully reclaimed after mineral activity. Development may be allowed, but must be mitigated to the fullest extent possible by use of the "limited surface use" stipulation.

Administration (GM2a)	Evaluate requests for mineral exploration and development. Administer geophysical prospecting and oil and gas exploration through permits and leases, respectively. Administer locatable and common variety minerals through both Notices of Intent, operating plans, and mineral material permits.

LAND USE

Special-Use Permits (JL2a)	All new special-use permits must not conflict with the management area's goal. This management area is available for utility-transportation corridor allocation or facility siting. Semi-primitive recreation must be given the highest consideration when planning a utility-transportation corridor or facility site.

ROADS

Management (LR2d)	Minimize public access by limiting motorized use to existing roads and travelways. Closures or restrictions may be used to: (1) resolve user conflict; (2) promote user safety; or (3) protect resources. (Also see Appendix O.)
Construction/ Reconstruction (LS10a)	Do not construct roads for surface use activities. Roads constructed for subsurface resource use will be closed to the public and obliterated when no longer needed.
Minerals Access (LS10b)	Construct or reconstruct mineral access roads to the minimum standard consistent with the intended long-range use of the roads. Use existing roads whenever possible.

JEFFERSON DIVISION

TRAILS

Management (LT2b)	Open all areas and trails to ORVs, except where use is restricted by season, type of vehicle, or type of activity. Closures or restrictions may be used to: (1) resolve user conflict; (2) promote user safety; or (3) protect resources. (Also see Appendix O.)
Construction/ Reconstruction (LS11b)	Design trails to blend with the natural landscape and construct or reconstruct trails for non-motorized and/or motorized use. Provide trailhead facilities as needed to facilitate safe access to trail and obtain necessary rights-of-way to the National Forest.

ROCKY MOUNTAIN DIVISION

Management (LT2d)	Close all areas and trails to ORVs, except designated routes. (Also see Appendix O.)

Construction/ Reconstruction (LS11b)

Design trails to blend with the natural landscape and construct or reconstruct trails for non-motorized use. Provide trailhead facilities as needed to facilitate safe access to trails and obtain necessary rights-of-way to the National Forest.

PROTECTION

Suppression (PD8b)

The appropriate suppression response ranges from "control" to "confinement" in this management area depending upon location, expected fire behavior, and other decision logic criteria related to values at risk. This decision criteria will be stated in a Fire Management Action Plan. (See Appendix P for specific Fire Management Direction.)

Prescribed Fire (PS12a)

Prescribed fire with **planned** ignitions will be used in this management area for the enhancement and maintenance of resources. (See Appendix P for specific Fire Management Direction.)

Prescribed Fire (PS12b)

Prescribed fire with **unplanned** ignitions may be used in this management area for the enhancement and maintenance of resources, when within pre-established prescribed fire criteria. This criteria will be detailed in a Fire Management Action Plan. (See Appendix P for specific Fire Management Direction.)

SCHEDULE OF PRACTICES (Average Annual)

	Proposed Decade 1	Probable Decade 2
Wildlife (See Appendix M)		
CW3c (Nonstructural Improvements)	144 Acres	144 Acres
CW3f (Structural Improvements)	1.5 Structures	1.5 Structures
Range (See Appendix R)		
DR3a (Nonstructural Improvements)	97 Acres	97 Acres
DR3e (Structural Improvements)	8 Structures	8 Structures

All other practices are assumed to be implemented in the first decade and apply to all acres.

The following monitoring requirements apply to this management area. (See Chapter V.)

A-1, A-2, A-3, A-5, A-6, A-7, A-8, B-3, C-1, C-2, C-3, C-4, C-5, C-6, C-7, C-8, C-9, C-10, C-12, C-13, D-1, D-2, D-3, D-4, E-9, E-10, E-11, F-1, F-2, F-5, F-6, G-1, G-2, G-3, G-4, G-5, J-1, J-2, J-3, L-1, L-2, P-3, P-4, P-5, P-6, P-7, 1-1, 1-2, 1-3, 1-4.

The procedures outlined in Chapter V will be followed to evaluate the data gathered during monitoring.

MANAGEMENT AREA G Management Area G (247,664 acres; 13.2 percent)

Description	Management Area G contains large areas of undeveloped land. Motorized access is very limited. The land is forested but contains much rock, some grassy inclusions, and is generally steep and broken. Much of the area is non-commercial forest or is not economical for timber harvest. The exception to this description is the Two-Medicine drainage, a broad U-shaped valley on the Rocky Mountain Division.
Goal	Maintain and protect Forest resources with minimal investments.

In addition to the Forest-Wide Standards in Chapter II, the following applies:

RESOURCE ELEMENT	MANAGEMENT DIRECTION
RECREATION	
Dispersed (AP2a)	Manage dispersed recreation settings and existing recreation improvements, prepare travel plans, and administer recreation special use permits.
Improvements (AP3b)	Improvements may consist of trailheads, parking facilities, and sanitation facilities at the periphery of large undeveloped areas, or be limited to trailhead facilities along opened roads.
Setting	The setting is mostly semi-primitive, natural environment of moderate-to-large size. Concentration of users is low, but there is often evidence of other area users. Minimum on-site controls and restrictions may be present, but are subtle. Motorized use may be permitted.
Visual Quality Objective	The VQO will usually be retention or partial retention. Landscape changes will not be evident to the average person. Modification may not be appropriate in the management area. If the VQO is not met and the visual impacts can be classified as EVC 3 or greater, the site should be rehabilitated within 1 year to restore the landscape to at least an EVC Class 2. (See Appendix N.)
WILDLIFE	
Operation, Protection, and Maintenance (CW2b)	Maintain important identified wildlife habitat, including T&E habitat, big-game winter ranges, calving or lambing areas, migration routes, elk summer range, raptor nesting sites, and significant non-game habitat values.
Nonstructural Improvements (CW3c)	Improve habitat by prescribed burning and planting desirable forage on disturbed sites. Priority for funding will be low.

Structural Improvements (CW3f)	Coordinate fencing and water developments with range management. Projects should be jointly financed where both resources benefit. Priority for funding will be low.

RANGE

Administration (DR2c)	Administer existing range permits, monitor range use, and cooperate with permittees in maintaining existing range improvements (range improvements will normally be replaced on a 20-year schedule). Prepare range allotment plans or other plans involving range management on a 20-year schedule. Continue to use and develop range agreements with other agencies or landowners. Priority for funding will be low.
Nonstructural Improvements (DR3a)	Use prescribed fire to control tree/shrub encroachment and to maintain or enhance forage production on range. Mechanical or chemical methods are also acceptable. Cooperate closely with other Federal and State agencies, individuals, contractors, and permittees to control noxious weed and pest infestations.
Structural Improvements (DR3f)	Build/rebuild improvements (fences, water developments) to improve livestock distribution, range vigor, and range vegetation.

TIMBER

Unprogrammed (ET2)	Harvest unprogrammed amounts of products including Christmas trees, firewood, ornamentals, and miscellaneous wood products through administrative use, free use, permits, salvage, and sanitation cutting.

SOIL AND WATER

Protection (FW2c)	Adhere to State water quality standards and maintain current soil productivity. Priority for funding will be low for structural or land treatments which maintain or rehabilitate watersheds or soil.

MINERALS

Development (GA3b)	Occupancy is allowed only where surface resources can be maintained during occupancy and the surface quality can be fully reclaimed after mineral activity. Development may be allowed, but must be mitigated to the fullest extent possible by use of the "limited surface use" stipulation.

Administration (GM2a)

Evaluate requests for mineral exploration and development. Administer geophysical prospecting and oil and gas exploration through permits and leases, respectively. Administer locatable and common variety minerals through both Notices of Intent, operating plans, and mineral material permits.

LAND USE

Special-Use Permits (JL2a)

All new special-use permits must not conflict with the management area's goal. This management area is available for utility-transportation corridor allocation or facility siting.

ROADS

Management (LR2d)

Minimize public access by limiting motorized use to existing roads and travelways. Closures or restrictions may be used to: (1) resolve user conflict; (2) promote user safety; or (3) protect resources. (Also see Appendix O.)

Roads constructed for mineral use will usually be closed to the public use and obliterated when no longer needed.

Construction/ Reconstruction (LS10a)

Short segments of local roads (up to 1.0 mile from roads as shown on the 1983 inventory) may be constructed to remove round, salvage, and deadwood. To minimize public access, these roads will be closed to public use, except when opened seasonally for public firewood removal.

Mineral (LS10b)

Construct or reconstruct mineral access roads to the minimum standard consistent with the intended long-range use of the roads. Use existing roads whenever possible.

TRAILS

Management (LT2b)

Open all areas and trails to ORVs, except where use is restricted by season, type of vehicle, or type of activity. Closures or restrictions may be used to: (1) resolve user conflict; (2) promote user safety; or (3) protect resources. (Also see Appendix O.)

Construction/ Reconstruction (LS11b)

Design trails to blend with the natural landscape and construct or reconstruct trails for motorized and/or non-motorized use. Provide trailhead facilities as needed to facilitate safe access to trail and obtain necessary rights-of-way to the National Forest.

MANAGEMENT PRESCRIPTIONS

PROTECTION

Suppression (PD8b)	The appropriate suppression response ranges from "control" to "confinement" in this management area depending upon location, expected fire behavior, and other decision logic criteria related to values at risk. This decision criteria will be stated in a Fire Management Action Plan. (See Appendix P for specific Management Direction.)
Prescribed Fire (PS12a)	Prescribed fire with **planned** ignitions will be used in this management area for the enhancement and maintenance of resources. (See Appendix P for specific Management Direction.)
Prescribed Fire (PS12b)	Prescribed fire with **unplanned** ignitions will be used in this management area for the enhancement and maintenance of resources, when within pre-established prescribed fire criteria. This criteria will be detailed in a Fire Management Action Plan. (See Appendix P for specific Management Direction.)

SCHEDULE OF PRACTICES (Average Annual)

	Proposed Decade 1	Probable Decade 2
Wildlife (See Appendix M)		
CW3b (Nonstructural Habitat Improvements)	155 Acres	155 Acres
CW3f (Structural Improvements)	1 Structure	1 Structure
Range (See Appendix R)		
DR3a (Nonstructural Improvements)	119 Acres	119 Acres
DR3f (Structural Improvement)	7 Structures	7 Structures

All other practices are assumed to be implemented in the first decade and apply to all acres.

The following monitoring requirements apply to this management area. (See Chapter V.)

A-1, A-2, A-3, A-5, A-6, A-7, A-8, B-3, C-1, C-2, C-3, C-4, C-5, C-6, C-7, C-8, C-9, C-10, C-12, C-13, D-1, D-2, D-3, D-4, E-9, E-10, E-11, F-1, F-2, F-5, F-6, G-1, G-2, G-3, G-4, G-5, J-1, J-2, J-3, L-1, L-2, P-2, P-3, P-4, P-5, P-6, P-7, 1-1, 1-2, 1-3, 1-4.

The procedures outlined in Chapter V will be followed to evaluate the data gathered during monitoring.

APPENDIX D

SCOPING INFORMATION

The following Chevron/Fina project scoping information is included in this appendix:

- Content Analysis on Combined Chevron/Fina Scoping Period Page D-1
- Content Analysis on Scoping Period for Chevron APD Page D-10
- Content Analysis on Scoping Period for Fina APD Page D-40

CONTENT ANALYSIS ON SCOPING PERIOD FOR COMBINED CHEVRON/FINA EIS - 1988

On Wednesday, February 24, 1988, a scoping package was mailed to approximately 350 people notifying them of the decision to combine the Chevron and Fina analyses into one comprehensive Environmental Impact Statement and requesting their assistance in refining or identifying the issues to be examined in the combined environmental analysis.

The scoping letters contained:

1. A history of the two projects (Chevron and Fina)
2. The reasons for undertaking a comprehensive EIS disclosing the effects of exploratory drilling and production facilities for both proposals
3. A request to submit any additional issues that the interdisciplinary team may have overlooked in the previous scoping periods

Enclosures with the scoping letter included:

1. The 1984 Scoping Document for the Fina Analysis
2. The 1986 Scoping Document for the Chevron Analysis
3. The 1987 Summary of the Issues in the Appeals of the Fina Decision Notice

On Tuesday, February 23, 1988, the Notice of Intent appeared in the Federal Register; interested individuals were requested to comment by the scoping period deadline of March 25, 1988. Because extensive scoping had previously been done for the Fina analysis (1983-84) and the Chevron analysis (1986), the interdisciplinary team decided that public scoping meetings were not needed. This decision was upheld by the public, since no requests for public meetings were received during the comment period.

On Wednesday, February 24, 1988, news releases were sent to 21 newspapers around the state and the three local television stations in Great Falls. On Thursday, March, 3, 1988, an article appeared in the Great Falls Tribune. Other articles appeared in several of the local newspapers around the same time.

On Tuesday, March 22, 1988, another news article appeared in the Great Falls Tribune with a reminder of the comment period deadline of March 25, 1988.

The Forest received seven written letters and one telephone comment during this scoping period. Of the seven letters received, three were from environmental/conservation-type groups; one was from a recreation organization; and two were from government agencies. The telephone comment was from a government agency.

Chevron/Fina

The following concerns were received during the scoping period for the combined Chevron/Fina EIS:

1. **COMMENT:** What wildlife management program is appropriate to mitigate the adverse effects of petroleum development in sensitive wildlife habitats?

    a. Cooperative monitoring and evaluation - to document effects, validate guidelines, and validate CEM.

    b. Modification to other resource problems, especially timber and range, to promote habitat security and enhancement.

    c. Cooperative management activities that are tiered to levels of production.

    d. Funding strategies.

    RESPONSE: The need for monitoring to document 1) the effects on wildlife, 2) the effectiveness of the Rocky Mountain Front Guidelines and 3) the validity of the coefficients for the Cumulative Effects process for grizzly bear will be part of the EIS. This documentation will be completed in conjunction with the MDFWP, NPS, BLM, BIA and Blackfeet.

2. **COMMENT:** When disclosing the effects of "production facilities" will it include exploratory facilities proposed by Chevron and Fina; additional drilling that would be inevitable in the event of commercial discovery; pipeline construction; and basic support facilities such as sweetening plant and residences for oilfield workers.

    RESPONSE: All facilities proposed by Chevron and Fina will be disclosed in the EIS. In addition, an oil and gas activity analysis of the Badger Two Medicine Area will disclose possible future actions that may be proposed resulting from either an initial "dry hole", a single well discovery, and a field discovery. The disclosures are based upon historical probabilities for encountering hydrocarbon from new field wildcat wells.

3. **COMMENT:** Will the draft EIS disclose any degree to which the respective companies' investment in the exploratory stage might prejudice any subsequent decision on development stages.

    a. **COMMENT:** The potential for two developed oil fields in one bear management unit is really what's at stake here

        RESPONSE: The EIS will address the impacts to the grizzly bear in respect to exploratory drilling as well as a field development that is tied to the foreseeable development.

    b. **COMMENT:** Concern that industry can pursue aggressive drilling even when it leads to one dry hole after another. It's foreseeable that a commercial discovery would result in pressure for more drilling.

        RESPONSE: Any future company proposals are subject to the decision process under the National Environmental Policy Act (NEPA). Under this Act the agency will disclose the environmental effects of various alternatives and select the one that best meets the agency goals and mission. In addition to NEPA, all proposed projects are subject to the Endangered Species Act and other laws. Should a discovery be made, a more informed decision can be made on future proposals because at that time a true trade off decision can be made.

4. **COMMENT:** Approving the APD would favorably affect adjacent areas east of the continental divide...economically. The Blackfeet Nation would benefit too.

RESPONSE: An analysis of the economic and social effects of the proposed actions in the local surrounding communities is part of the EIS analysis.

5. **COMMENT:** Although there has been increased recreation use in the area, the wildlife populations of elk, grizzly,sheep and goats are all stable or increasing...therefore, human use has not adversely affected the area.

RESPONSE: This issue is being addressed in EIS.

6. **COMMENT:** Forest Plans set the proper management thus negating the need for further restrictions.

RESPONSE: The Forest Plan has not fully analyzed or disclosed the effects of exploratory drilling on a specific location on the Forest. This EIS study is to address and disclose the potential effects of the proposal as required under the National Environmental Policy Act, and to ensure the project is conducted according to the Forest Plan.

7. **COMMENT:** With the new technology, oil exploration can occur without adverse effects.

RESPONSE: The EIS examines and discloses the effects of the exploration proposal.

8. **COMMENT:** Wolves should not be an issue, since the area is only "potential" habitat and all northwestern US could be considered potential habitat.

RESPONSE: Under the Endangered Species Act requirements, the EIS will address and disclose any potential effects that could affect the wolf habitat or recovery populations that could occur in the area.

9. **COMMENT:** Drilling in good times is better than in crisis situation...drilling could occur at nominal rate with adequate monitoring when not in a crisis mode.

RESPONSE: Agencies must analyze and disclose the potential effects of a proposed action following the NEPA process before any decision can be made.

10. **COMMENT:** Wilderness usage is decreasing and non-wilderness is on the increase...emphasis should be placed on non-wilderness areas and less on the wilderness concept.

RESPONSE: Regardless of the uses now occurring in the Badger-Two Medicine Area, the Forest Service is still required to follow the NEPA process when making a decision on exploration proposals. The potential effect on the recreational uses occurring in the Badger Two Medicine Area will be analyzed in the EIS.

11. **COMMENT:** Concern that a full scale worst case analysis be done and it should detail the potential impacts of:

    a. large scale field development (up to 25 rigs)

    b. road network

    c. pipelines

    e. a refinery

    RESPONSE: Recent changes in the NEPA regulations no longer require a worst case analysis. However, reasonably foreseeable oil and gas activities such as 1) a dry hole, 2) a single well discovery, and 3) a field discovery, will be described and evaluated for effects in the EIS.

12. **COMMENT:** Concern that the EIS had better detail the impacts on Glacier National Park and the adjacent wilderness areas, recreation, hunting, outfitting and guiding, wildlife.

    RESPONSE: Each of these items is addressed in the EIS analysis.

13. **COMMENT:** Concern that the EIS had better show the impacts of the current lifestyles on adjacent areas, economic impacts, and crime increases that may occur.

    RESPONSE: The potential social and economic effects to the surrounding local communities will be addressed in the EIS analysis.

14. **COMMENT:** Concern that a full-scale worst case analysis which details the effects of a major well blowout (2 simultaneous well blowouts) which shows the possible effects of major releases of H_2S and sulfuric acid, and the possible human and wildlife impacts, as well as air quality violations of the Clean Air and Water Acts.

    RESPONSE: The environmental document will include a section discussing the effects of a release of hydrogen sulfide. Also included is a discussion of air quality and the effects various gas components may have on vegetation, humans and wildlife. Statistical studies (Lawrence Livermore National Laboratory, 1984) have determined from past drilling data, the number of gas releases from over 35,000 wells drilled in the Alberta portion of the Overthrust Belt. Of these 35,000 wells, there were 83 blowouts, which were defined as any accidental, uncontrolled release of gas (of any type) to the atmosphere, regardless of amount. This represents releases from about 0.25% of the 35,000 wells drilled.

    These numbers demonstrate that the likelihood of two simultaneous full-scale well blowouts is extremely small. We do recognize that any release of hazardous gas has the potential to be quite dangerous, subsequently, this concern will be addressed in the EIS.

15. **COMMENT:** The Forest should review the comments, statements, and affidavits submitted in previous appeals or comments to previous projects.

    RESPONSE: The Forest will send a letter requesting that these commentors be more specific in identifying issues that they feel the ID Team has overlooked in their review and identification of pertinent issues regarding the Chevron and Fina projects.

16. **COMMENT:** Request that contact not be initiated with the PTA without providing this group with notice and opportunity to attend such a meeting.

RESPONSE: On April 20, 1988, the Forest Service received oral request from G.G. Kipp that his attorney receive copies of all correspondence. In the future, this will be done.

17. **COMMENT:** Concern for the protection of the biological integrity of Glacier National Park, a biosphere reserve of local, national and international significance...this goal can best be accomplished by retaining the primitive quality of the Badger-Two Medicine area.

RESPONSE: This concern will be addressed in the EIS.

18. **COMMENT:** Concern that the greatest value of the area is its primitive status and providing high quality wildlife habitat, wildlife viewing, and hunting.

RESPONSE: This issue will be addressed in the EIS as part of the aesthetics and recreational sections.

19. **COMMENT:** Concern that road building and increased access could have significant impacts on endangered and other wildlife species. Commentor feels that the area is currently underutilized by grizzly bears and ungulates because of illegal hunting and harassment. Increased access will only exacerbate the problem.

RESPONSE: This is part of the issue of impacts to wildlife and is being addressed in the EIS.

20. **COMMENT:** Concern that the Badger-Two Medicine is an important genetic link for wildlife populations between Glacier National Park on the north and the Great Bear/Bob Marshall Wilderness complex on the south and east.

a. Badger-Two Medicine is an important spring and fall use area for grizzly bears.

b. Badger-Two Medicine is a wintering area and travel corridor for elk that summer in the Park.

c. Badger-Two Medicine may be used by a small number of bighorn sheep with movement between the Park and the Badger-Two Medicine.

d. There is interchange of mule deer and other wildlife between the park and the Badger-Two Medicine.

RESPONSE: The issue of migration between the Badger Two Medicine - Bob Marshall Wilderness-Glacier National Park is being addressed in the EIS.

21. **COMMENT:** Additional concerns include:

a. air pollutants and resultant acid deposition and the disagreeable odors associated with oil and gas development.

b. visual intrusions

c. loss of solitude

d. indirect impacts generated by increased population levels

RESPONSE: It has been recognized through various studies conducted by the Alberta Government that disagreeable odors were probably the primary complaint or concern raised by the people living near a large gas processing plant. While health risks and incidents of health problems due to gas plant emissions were not found to be significant, the report concluded that odor had the biggest effect, psychologically or physically, or inhabitants near the gas plant. The proposals we're analyzing in the EIS do not include the construction or emplacement of a large gas plant such as the one studied.

Acid depositions have been a concern of the Alberta, Canada government in that over half of the existing natural gas production in Alberta contains hydrogen sulfide gas. An on-going study is being conducted with input from industry and other boards and committees in the Province to determine effects of acid-gas forming emissions on air, water, soils, vegetation and people of Alberta. Their biophysical research will provide excellent data for determining such effects.

Those studies will address the effects that hundreds of gas wells have on a portion of the Province; at present, we are addressing the effects of two well drilling proposals. It is doubtful that these two projects, if permitted, drilled and put into production, could cause a noticeable increase in acid-gas forming emissions.

Air pollutants have previously been identified as an issue and will be addressed for both proposals in the EIS.

The potential effects to the visual and solitude attributes, as well as the indirect impacts associated with increased population levels will also be analyzed in the EIS.

22. **COMMENT:** Concern that food and garbage management and prohibition of weapons at the drill site or along access roads should be encouraged.

RESPONSE: This issue will be analyzed in the EIS.

23. **COMMENT:** Concern that the EIS had better address the very real probability of production, multiple-site drilling and field development.

RESPONSE: The real probability of discovery will be addressed in the EIS. The analysis will include the probability of production, multiple-site drilling, and field development based on a review of national and Montana discovery rates.

24. **COMMENT:** Commentor suggested that the use of high and low values for coefficients, rather than a single value, in order to evaluate not only the cumulative effects but the effectiveness of the model as well.

RESPONSE: This issue is in respect to the Cumulative Effects Model and is validation. It is not part of or a function of the EIS. The EIS's purpose is not to validate the CEM. This needs to and will be done outside the EIS process. In the monitoring plan, there will be language that relates to the validation of the CEM coefficients.

25. **COMMENT:** Concern that the EIS should address possibility of inter-aquifer transfer of fluids which could result in contamination of ground water in aquifers with higher water.

RESPONSE: While drilling, the company must abide by all State and Federal laws and regulations.

State regulations 36.22.1001 require that in areas where the pressure and formations are unknown, sufficient casing shall be run to reach a depth below all potable fresh water located at levels reasonably accessible for agricultural and domestic use. The same State regulations requires that only fresh water based drilling fluid may be used when drilling through fresh water aquifers anywhere within the State of Montana. Onshore Order No. 1 requires the submission of a drilling program with each Application for Permit to Drill. Parts of the drilling program require the operators plans to protect formations that contain fresh water and the type and quantity of drilling muds to be used. Prior to approval of the drilling permit, the Bureau of Land Management reviews the mud types to make sure that no toxic muds are used in contact with fresh water zones.

26. **COMMENT:** Concern that the EIS fully address erosion control (mainly the roads).

RESPONSE: This issue will be addressed in the EIS.

27. **COMMENT:** Recommendation that any development include a noxious weed management plan containing the following stipulations:

    a. All disturbed sites will be revegetated.

    b. Herbicide application will be required on disturbed sites. Treatment will end when a ground cover of desirable vegetation has been established which can prevent noxious weed invasion and establishment.

    c. Noxious weed control is facilitated, and cheaper, when the following steps are taken to prevent the introduction of noxious weed seeds or plant materials...using weed free sources for gravel and fill material...clean and inspect vehicles (including construction equipment) before entering the site.

    A noxious weed management plan must be an integral part of the planning and development of these project proposals.

RESPONSE: The Forest has an approved Noxious Weed Control EIS dated July 1986. The guidelines and any mitigation measures outlined in this EIS will be incorporated into the Chevron/Fina EIS analysis. In addition, the "Vegetation" sections in the EIS address the noxious weed issue. The commentor's stipulations will be reviewed and incorporated as appropriate.

28. **COMMENT:** Letter dated April 8, 1988, referencing issues raised by the following two publications.

    a. Rocky Mountain Institute, *Analysis of Oil Drilling Assumptions associated with Drilling on the Arctic National Wildlife Refuge*, RMI Publication No. 88-1.

Issue: Conservation of oil and gas through individual energy conservation is individually modest but collectively huge; and can offset exploration and development of the Arctic National Wildlife Refuge or similar areas. The publication cites examples of such conservation practices, including energy conservation in buildings, use of smaller vehicles, and energy consumption standards in household appliances and overall awareness of increasing efficiency in our society.

RESPONSE: The Lewis and Clark National Forest recognizes the importance of energy conservation and its role in resource management through implementation of Forest Wide Management Standard G-4 (Lewis and Clark N.F. Forest Plan p. 2-59). The Forest subscribes to energy conservation practices that can be accommodated within the scope of its management authorities. The larger issue of promoting energy conservation as a way to avoid exploration and development in new frontier areas is beyond the scope or agency mission. The pros and cons of the national energy conservation issue (as they relate to the Arctic National Wildlife Refuge) are summarized in the Rocky Mountain Institute's letter to Hon. Gerry E. Studds, Chair, Subcommittee of Fisheries and Wildlife Conservation and the Environment, U.S. House of Representatives, Washington D.C.

b. Trustees for Alaska Natural Resources Defense Council, National Wildlife Federation, *Oil in the Arctic; The Environmental Record of Oil Development on Alaska's North Slope*, 1988.

The findings in the report are summarized as follows:

* Pollution of air and water and major landscape impacts have resulted from oil development, which has transformed Alaska's Prudhoe Bay region into one of the world's largest industrial complexes, sprawling over several hundred square miles of the arctic coast.

* The conduct of oil and gas industries on the North Slope ranges from environmentally responsible to irresponsible - including instances of serious disregard for the environment. Hundreds of violations of state and federal regulatory controls to protect air, water and land have occurred, from minor infractions to at least one conviction on multiple criminal counts.

* Existing environmental laws and regulations as currently implemented and enforced fail to prevent significant environmental deterioration caused by oil and gas activities.

* Restoring large industrialized areas in the Arctic has not been shown to be economically or technically feasible over the long term, and industry predicts extremely high costs to restore developed sites on the North Slope.

* A systematic failure by resource agencies to adequately monitor compliance and environmental impacts and to pursue enforcement actions aggressively on the North Slope has left serious voids in data. This information gap will persist unless monitoring and enforcement are substantially improved.

RESPONSE: The Lewis and Clark National Forest recognizes the importance and need for close monitoring of the project during the exploration phase and in the event of a discovery, long-term monitoring of field development. Mitigation and monitoring will be addressed in detail in the EIS.

The cited publication outlined the long-term residual and unmitigated effects of very large scale development. The magnitude of development in the North Slope/Prudhoe Bay area is physically many times larger than the projected possible development in the RM-1 Area. At this time the hypothetical reserves projected for the Chevron and Fina prospects reasonably foreseeable development scenario are 500 to 1000 times smaller than estimated reserves in the North Slope Area. Described in the publication are the impacts of over 300 miles of roads which were constructed to service and access approximately 190 exploratory sites and drilling pads, as compared with approximately 20 miles of roads with 6 drill pads for the combined Chevron and Fina projects..

The approximate area of the North Slope field as shown in the publication covers an area of approximately 3000 square miles as compared with the 200 square mile RM-1 geographic unit. Developments of such magnitude are bound to tax the abilities of the regulatory agencies in terms of funding and manpower. The remote location and sensitive arctic environment make the job all the more difficult.

The ID Team recognizes the seriousness of the issues outlined in the publication. However, it is unlikely that the scope of the regulatory problem will ever amount to a problem of the magnitude addressed in the report prepared for Alaska's North Slope. The RM-1 area is geologically and physically incapable of developments of such magnitude. The team also recognizes that additional activity may take place beyond that associated with the Chevron and Fina projects. Such cumulative effects will be included in the EIS.

In addition, the stipulations attached to the leases within the RM-1 unit provide standard and special control measures to regulate the overall magnitude and intensity of the development.

CONTENT ANALYSIS ON SCOPING PERIOD FOR CHEVRON EIS

On Wednesday, February 26, 1986, a scoping package was mailed to 624 people explaining the APD process and requesting recipients to identify issues to be examined in the environmental analysis.

The scoping letters contained a brief explanation of Chevron's proposal, a time schedule for the analysis, and information on how they could become involved in the analysis process. The package was mailed to: 1) people who had been active during the Hall Creek/American Petrofina environmental analysis; 2) those who had been mailed information on oil and gas activity on the Rocky Mountain Front in the past; and 3) people who had become recently involved in the Blackleaf Full Field Development EIS. Attached to each scoping package was a return mailer and an explanation that anyone not responding to this package, in some way, would be removed from the mailing list.

On Monday, March 10, 1986, the Notice of Intent appeared in the Federal Register; interested individuals were requested to comment by the scoping period deadline of April 16, 1986. Scoping Openhouses and Workshops were originally planned in three locations:

Choteau Ranger District Office - Thursday, April 3
Great Falls Supervisor's Office - Wednesday, April 9
Browning Little Flower CCD Center - Thursday, April 10

Considerable interest was displayed on the University Campus in Missoula in opposition to development in the Badger-Two Medicine area. Congressman Pat Williams requested that an additional scoping meeting be conducted in Missoula to accommodate requests from interested individuals and groups in that area. An Openhouse/Workshop was scheduled for Tuesday, April 22. Seventy-three letters were sent to everyone on the original mailing list living in the Missoula/Bitterroot/Kalispell vicinity. The letters informed them of the time and location of the additional scoping session.

Because of this additional workshop, the comment period was extended to April 28, 1986. Several news releases appeared in the Great Falls Tribune, Kalispell Daily Interlake, Hungry Horse News, and Missoulian.

Participation at the sessions varied:

Choteau - 7 attended the daytime openhouse and 6 attended evening openhouse.

Great Falls - 5 attended daytime openhouse and 20 attended evening workshop.

Browning - 19 attended daytime openhouse and approximately 70 attended evening workshop.

Missoula - 16 attended daytime openhouse and 30 attended evening workshop.

The workshop sessions were divided into two parts : 1) Presentation on Chevron's proposal given by the EIS team leader, and 2) Issues identification workshop where everyone attending was given the opportunity to express their concerns about the company's proposal to the ID Team. Each concern was recorded and used in this content analysis.

In addition to the comments received at the workshops, the Forest received 137 written letters during the comment period. There were 120 letters received from individuals who did not represent an interest group; 9 letters from environmental/conservation groups; 6 letters from business interests; and 2 letters from government agencies. Categories were developed from the comments received:

		PAGE
I.	Full Field Development	3
II.	Grizzly Bear	5
III.	Other Wildlife	10
IV.	Water Quality, Air Quality, Fisheries, Noise	12
V.	Roads	13
VI.	Blackfeet Tribal Rights/American Indian Religious Freedom Act	16
VII.	Social/Economic	18
VIII.	Vegetation/Noxious Weeds	20
IX.	Need For the Oil and Gas	20
X.	Recreation	21
XI.	Law Enforcement	22
XII.	Mitigation	22
XIII.	Health and Safety	23
XIV.	Impacts on Glacier National Park/Bob Marshall Ecosystem	23
XV.	Roadless/Wilderness/Aesthetics	24
XVI.	Reclamation	26
XVII.	Questions	26

The interdisciplinary (ID) team identified 16 issues from the comments received. These issues are stated at the beginning of the categories I through XVI that follow. Some comments did not contribute to the understanding of an issue. Other comments requested actions outside the authority of the agencies or were contrary to policies or previous agency decisions. The ID team provided written response for the comments they felt could not or should not be considered in the Environmental Impact Statement. Several individuals asked specific questions. Category XVII provides answers to the questions asked.

I. FULL FIELD DEVELOPMENT

ISSUE: In addition to exploration drilling, where and what type of hydrocarbon production systems and facilities, including pipelines, roads, storage tanks, treaters and other structures are appropriate for the project area?

A. FULL FIELD DEVELOPMENT IN GENERAL

Comment 1. Concern that the analysis should consider full field development. These people felt that any impacts associated with full field development should be taken into consideration in the EIS.

Comment 2. Concern that the EIS should consider all drill sites...step out wells and additional development if the well is a hit.

Comment 3. Concern that analyzing the effects of full field development after the test well is drilled is an after-the-fact approach.

Comment 4. Concern that it would be premature to consider full field development at this stage.

Comment 5. Concern that without full field development analysis, the EIS would be a "piecemeal invasion" of the RMF.

Comment 6. Concern that without a Full Field Development analysis now, a test well could be drilled that under a Full Field Development analysis would show that the impacts and effects would be too great to allow it...the test well would already have been drilled unnecessarily.

Comment 7. Concern that all proposed drilling is considered so there is not a network of roads.

Comment 8. Effect of a full field development on the ecosystem.

Comment 9. Concern for where a pipeline and processing facilities would be located if the well proves out.

Comment 10. Concern for the EIS to address how long the site would be occupied...if a producing well, could be up to 50 years.

Comment 11. Concern for addressing long term effects (not specific).

Comment 12. Transportation studies should be closely worked out with the operators of wells drilled in the study area.

Response: There is considerable variation in the comments of how the agencies might address the issues of full field development in conjunction with Chevron's drilling proposal. The size of the area suggested for analysis ranged from a Federal Spacing Unit to the entire Rocky Mountain Front. Some wanted any and all possible drill sites analyzed, including step-out wells and additional development should the first well be producible. Some wanted all proposed drilling analyzed in conjunction with a transportation system so that there would not be a network of roads. Others suggested production systems such as tank batteries, pipelines and other facilities associated with the development of a well or oil field be considered as well as the expected duration of such activity. Some suggested field development analysis was unnecessary.

In the case of Chevron's proposal, the idea of area planning or of full field development analysis would necessarily involve considerable speculation as to mineral values and production technology as there is no existing information as to proven reserves in the Badger-Two Medicine area nor as to the extent or existence of hydrocarbon bearing structures. In areas where there has been extensive oil and gas development, such as on the Custer National Forest or the Blackleaf Unit, an area planning concept has been developed for analyzing activities where intensive development is projected. The area plan management tool was the result of knowledge of existing fields and fairly consistent producing formations. In these areas, it was relatively easy to predict characteristics of producing formations based on adjacent drilling information, and existing State spacing orders were established for nearly all of the producing formations.

The Council on Environmental Quality amendment to 40 CFR Part 1502.22, regarding incomplete or unavailable information for EIS's, specifies that Federal agencies shall make reasonable efforts to obtain missing information which is important to evaluating significant adverse impacts on the human environment that are reasonably foreseeable. If this information is unobtainable, the agency shall include in the environmental document (a) a statement that such information is missing, (b) a statement of the relevancy of the missing information to the evaluation, (c) a summary of existing credible scientific evidence relevant to evaluating adverse impacts on the human environment, and (d) the agency evaluation of such evidence. It is stressed that reasonably foreseeable impacts are those that have credible scientific support and are not based on pure conjecture.

In the EIS for Chevron's drilling proposal, the Agencies intend to analyze Chevron's proposal through production as well as any other "reasonably foreseeable" associated activities. This would also include analyzing Fina's Hall Creek proposal through production, as a related and foreseeable activity contributing to the cumulative effects of the area. This will necessitate analyzing several scenarios for development.

Given the limits of our knowledge of the potential of the area for producing hydrocarbons and our mandate to analyze impacts and activities that have a credible scientific backing versus pure conjecture, the Agencies believe the scope of this analysis and the issue as identified above is relevant and pertinent to address the project proposal. To do more would increase costs and manpower commitments for the study without assurances that the resulting findings would be reasonable or accurate, and would tend to portray environmental findings influenced by conjecture or speculation rather than fact or reasonable scientific inference.

This position is also in conformance with BLM policy (BLM manual 3160-1.16) which specifies that cumulative impacts for field development of federal minerals should be addressed at the proposed drilling of the confirmation well following discovery by an exploration well. In unusual circumstances field development analysis may be delayed pending completion of one or two wells after the discovery well is completed to define the extent of the discovery. The term "confirmation well", as used by the BLM is loosely defined, but is construed, usually, as the second well drilled after a discovery in the same formation, regardless of surface ownership.

B. SIZE OF THE STUDY AREA

Comment 1. Concern that the study area should be reduced to the size of a Federal Spacing Unit (FSU) as determined by the BLM (USGS). If FSU is not feasible, then the hydrological unit which has its boundaries within the watershed should be used.

Response: The entire Rocky Mountain Front has been divided into Bear Management Units (BMU). These units are based on an area that contains enough of the constituent elements (spring, summer, fall range & denning habitat) to support a biologically viable grizzly bear population. Radio locations were used to establish use patterns at various areas by bears as well as to verify the location of the bear unit boundaries. The BMU is the basis on which the cumlative effects analysis operates - therefore this is the reason to maintain the BMU as the analysis area. Neither the Federal spacing unit* or the hydrologic unit would provide an adequate base area from which to do the grizzly bear cumulative effects analysis. Proposed and alternative road locations would extent beyond the boundaries on these units.

Chevron

* The spacing unit for this well is presently statewide spacing, for gas this is one well per reservoir per 640 acres.

II. GRIZZLY BEAR

ISSUE: What will be the effects on threatened and endangered (T&E) species (gray wolf, grizzly bear, bald eagle, peregrine falcons)?

A. GRIZZLY BEAR HABITAT (GENERAL)

Comment 1. Concern that the grizzly habitat would be threatened or adversely impacted by any development activity (roads and/or wellsite).

Response: This is part of the T&E issue and will be addressed in the analysis.

Comment 2. Concern that the grizzly bear issue is being overdramatized and that drilling will not affect the bear.

Response: This is part of the T&E issue and will be addressed in the analysis.

B. CUMULATIVE EFFECTS MODEL (GENERAL)

Comment 1. Concern that the Cumulative Effects Analysis is adequate and valid.

Response: A Cumulative Effects Model (CEM) has been used effectively on the Blackfeet Reservation and is presently being used in the Yellowstone ecosystem. The CEM is being developed and tested for use in the Birch-Teton BMU on the Rocky Mountain Front. As with anything that is new there can be problems. However, it is a far better procedure than anything that has been used in the past. It will allow managers to be able to quantify impacts to bear habitat. As with anything that is new, it will need to be monitored, verified and perhaps modified to obtain the most meaningful and accurate predictions possible.

Comment 2. Concern that the decisions will not be biased and there are limitations to the methodologies and criteria used to determine the detrimental impacts and threshold levels.

Response: With the development of the cumulative effects model (CEM) there will be a quantifiable answer available to the decisionmakers which will display the impacts to the grizzly bear and its habitat. This will aid in reducing biases in the decision making process but will not eliminate it. The CEM that will be used is a better tool than has been used in the past for aiding decision makers in determining impacts to wildlife habitat. It is a pioneering effort and through time the model will be improved with further monitoring and modification. As far as threshold levels - these have not been developed yet by the CEM team or land managers but will be set prior to completion of the model.

Comment 3. Concern because the potential for habituation is not part of the CEM. Habituation needs to be considered in the analysis...habituated bears usually become a mortality action...specific activity could habituate bears.

Response: Habituation has been dropped from the model because this component of the model was not supported by adequate research. Predicting habituation patterns is akin to analyzing bear behavior, which is very unpredictable. Also it is not correct to assume all habituation is detrimental. If bears had not habituated (adjusted to man and his activities) they likely would not be in existence on the Front or be able to utilize some of the habitat that is available on the Front.

C. DATA BASE FOR CUMULATIVE EFFECTS MODEL

Comment 1. Concern that the data base be accurate, site specific, and that the cumulative effects model be completed before the drilling.

Response: The data base will be the most current mapping that has been done. The maps that have been generated by the Rocky Mountain Front (RMF) studies will be used as well as the grizzly bear vegetative polygon maps (component maps) that are being mapped to a 90% accuracy. The model is scheduled for completion by this fall and will be used to analyze the Chevron proposal.

Comment 2. Concern that the CEM, ACA, and GIS systems be adequate, and that the data input be valid.

Response: The Cumulative Effects Model (CEM) will be the second computer model of its kind developed to assess cumulative impacts to grizzly bears. It is patterned after the Yellowstone ecosystem model which is now operational. The CEM team is developing a model that will assess the impacts using a system that is compatible with the Forest Service's DG system. The activity analysis will incorporate all the activities that will impact the bear or it's habitat. The GIS (Geographical Information System)-MOSS (Maps, Overlays & Statistical System) is one that is compatible with the Forest Service's DG system and the software is available from the U.S. Fish and Wildlife Service. We feel the systems will be adequate and are taking all reasonable steps to assure valid data input.

D. CUMULATIVE EFFECTS MODEL CONSIDER OTHER ACTIVITIES

Comment 1. Concern that the CEM consider the intensive timber harvest in the Upper Middle Fork. EIS should include a comprehensive oil and gas development plan encompassing both sides of the Continental Divide. Concern that all other potential drilling sites and associated activities be considered in the CEM. Projects specifically addressed were: Woods Petroleum, American Petrofina, Blackleaf, and Canadian sites. Commentors felt that these combined projects have greater potential for adverse effect on grizzlies. Concern that the CEM include the entire Rocky Mountain Front instead of only the Bear Management Unit. Bears do not confine themselves to one BMU and can therefore be affected by activities in other BMU's that they travel through. Concern that a complete ecological study of the entire Rocky Mountain Front be done before a decision is made.

Response: The analysis area we have chosen for evaluation of effects on grizzly bears is the Bear Management Unit (BMU). The BMU boundaries were established as the appropriate analysis unit by an interagency biologist team which includes representatives from the U.S. Fish and Wildlife Service and are based on grizzly bear habitat needs. The BMUs have since been verified and, where necessary, modified by the use patterns of radio collared bears.

It is true that individual bears do pass between the BMUs, but most of the time the BMUs contain a distinct subpopulation of bears. If each BMU is managed to maintain the habitat which provides for bear recovery within that BMU, then activities in all the BMUs will provide for bear recovery. Said another way, if each BMU is managed for bear recovery, then the whole ecosystem is being managed for recovery.

With regard to the specific activities you mentioned on the Flathead NF, they would be included in the analysis of cumulative effects on habitat within that BMU. In this analysis we will consider to some extent the effects of activities in close proximity to the BMU boundary. The only activity in that category at the present time is a timber sale in Skyland Creek. If current plans are followed, the units in that sale which lie near the Continental Divide will be complete in 1986 and will not be active at the time this analysis is complete. Oil and gas activities on the Flathead NF are currently suspended because of a current decision regarding the leases there.

Comment 2. Concern that unrelated activities in the same general area be included in the CEM (snowmobiling specifically mentioned). Concern that the CEM must take into account all of the negative impacts to the bears that are now occurring.

Response: All the activities that are presently ongoing in the BMU will be displayed and analyzed within the CEM (i.e. roads, trails, recreation - dispersed and developed, livestock grazing, etc.)

Comment 3. Concern that the CEM process address the relationship between grizzly's access to private lands and permissible levels of development on public lands. Should intolerance of some landowners disallow grizzly use of acreage, the total range of survival opportunity for the grizzly is to that extent restricted, and development may have to be curtailed to that extent.

Response: Private lands within the BMU will have some activities analyzed such as roads, houses, boneyards, and winter pastures for livestock. These activities should show a reduction in effective habitat. However, the model will not assess people's attitude toward the bear.

Comment 4. Concern that human activity when bears are mating will lead males to high elevations where they will be mating in belly-deep snow...showing that they retreat from humans. Concern that introducing human activity into new areas, available habitat for their retreat from conflicts, and could adversely affect the overall population stability and reproductive success.

Response: This is part of the T&E issue and will be addressed in the analysis.

E. SIZE OF THE CEM AREA

Comment 1. Concern that the EIS identify T&E species habitat components over a large area - Biological Unit:

> "A Biological Unit is an area of land which is ecologically similar and includes all of the year-long habitat requirements for a sub-population of one or more selected wildlife species"

Response: The definition of a biological unit defines what a BMU is. This plus the size of home ranges of radioed bears was used to delineate the BMU boundaries. This will be the analysis unit used in the EIS. Due to the present population status of other T&E species present in the area we believe that the present BMU boundaries are adequate.

F. RECOVERY

Comment 1. Concern that the bear must be brought back to recovery level in the Badger-Two Medicine Unit before additional impacts occur in the form of oil and gas development.

Response: The Montana Dept. Fish, Wildlife and Parks EIS for Grizzly Bear Management (1986) documents that the estimated population for the Badger-Two Medicine is 16-20 bears. This works out to be 1 bear for 20-25 square miles, which is near the recovery level. A population task force for the Grizzly Bear Recovery Plan will be developing monitoring techniques to determine if the Northern Continental Divide Ecosystem population is recovered. The recovery plan is to be revised by January. The information in the plan will be used during the assessment for this APD.

Comment 2. Information regarding ecosystem integrity in the Recovery Plan (pg. 15). Concern that fragmentation of the habitat will be a problem and that inter-isolate dispersal between populations may prove to be very important.

Response: Threshold levels will be developed for the BMU. Development may be allowed as long as these are not exceeded. As long as enough habitat is left undisturbed so that the bear can carry on its functions there should be no isolation of populations. It appears bears have been able to cope with major rivers, highways, and railroads that are presently in their habitat, without developing population islands within the Rocky Mountain Front populations.

G. DISPLACEMENT

Comment 1. Concern for the displacement of bears as a result of the drilling.

Response: This is part of the T&E issue and will be addressed in the analysis.

Comment 2. Concern that helicopters have been known to displace bears in the Richards Island Study.

Response: This is part of the T&E issue and will be addressed in the analysis.

Comment 3. Concern that bears may be displaced because of activities in other BMU's (Petrofina, Blackleaf, and Chevron)...and eventually displace them onto private lands including lands where they will have a risk of mortality.

Response: This is part of the T&E issue and will be addressed in the analysis.

H. MORTALITY

Comment 1. Concern for risk of mortality involved with the development.

Comment 2. Concern that past experience in Alaska with crew camps causes bear incidents and higher risk for mortality actions.

Comment 3. Concern that mortality could increase due to illegal poaching.

Response: All of the above comments regarding mortality are part of the T&E issue and will be addressed in the analysis.

I. EFFECTS ON DENNING

Comment 1. Drilling operations or the associated noises could affect grizzly denning habitat. (Jonkel 1979)

Response: This is part of the T&E issue and will be addressed in the analysis.

Comment 2. Concern expressed that the EIS contain an adequate "Denning Constituent Element" discussion...reference and graphic display.

Response: The '86 revised denning constituent map that is part of the Rocky Mountain Front studies will be part of the data base that will be used for the EIS analysis.

J. ROADING EFFECTS

Comment 1. Concern that the roads will have a detrimental effect on the grizzly and its habitat...especially since the area has been previously unroaded.

Comment 2. Concern that four of the road alternatives pass through riparian zones identified by Jonkel (1979) and Aune (1984) and are of critical importance to the bear.

Comment 3. The road alternative over the continental divide would deny considerable alpine habitat to grizzly bears.

Response: All of the above comments regarding roading effects on grizzly bear are part of the issue and will be considered in the analysis.

K. MISCELLANEOUS

Comment 1. Concern that the EIS address the importance of the Badger-Two Medicine as critical spring range for grizzly bears of the Upper Middle Fork of the Flathead.

Response: This is part of the T&E issue and will be addressed in the analysis.

III. WILDLIFE

ISSUE: What will be the effects on wildlife habitat and populations?

A. WILDLIFE (GENERAL)

Comment 1. Concern that the area has prime wildlife habitat and populations and the activity could disrupt the habitat and reduce the populations.

Response: This is a wildlife issue and will be addressed in the analysis.

Comment 2. Concern that the roading would impact the wildlife.

Response: This is a wildlife issue and will be addressed in the analysis.

B. WOLF

Comment 1. Concern that the area is key habitat for the wolf .

Comment 2. Concern that wolf recovery be considered carefully.

Comment 3. Concern that the wolves are not a valuable resource and should not hinder the development.

Comment 4. Concern that the roading associated with the development could make the wolves more vulnerable to direct mortality.

Response: All of the above comments regarding the wolf are part of the T&E issue and will be addressed in the analysis.

C. THREATENED AND ENDANGERED SPECIES

Comment 1. Concern that the development would have adverse effects on T&E species...comments were not that specific as to how the development would affect species...bald eagle was mentioned twice.

Response: This is part of the T&E issue and will be addressed in the analysis.

Comment 2. Concern that too much emphasis was being placed on the T&E species; person wanted other species to be evaluated in depth...song birds mentioned.

Response: By law we are instructed to analyze projects and their effects on T&E species. We are also instructed to analyze projects and their effects on other species of wildlife. The EIS will address the impacts to species other than T&E species. The species that will be addressed are the indicator species that are listed in the Lewis and Clark National Forest Plan.

D. OTHER SPECIES

Comment 1. Concern for impacts on elk.

Comment 2. Concern for impacts on elk calving.

Comment 3. Concern for impacts on mountain goat.

Comment 4. Concern for impacts on moose populations

Comment 5. Concern for impacts on Bighorn Sheep

Response: All of the above comments are part of the wildlife issue and will be addressed in the analysis.

Comment 6. Concern that a raptor survey is needed.

Response: A raptor search of the entire BMU is not necessary as there will be very little impacts, if any, to raptor nest sites unless they exist at the well site or along a road corridor. However, the proposed road locations and the drill site will be examined to determine if there are any raptor nests with emphasis on Bald and Golden eagles, falcons (peregrines & prairie), and goshawks. The Wildlife Guidelines also provide guidance with respect to project proposals.

E. MIGRATION

Comment 1. Concern that the migration patterns of the wildlife will be disrupted and cause problems.

Response: This is a wildlife issue and will be addressed in the analysis.

Comment 2. Concern that the disruption of the migration pattern will reduce the genetic diversity of the wildlife species.

Response: This is a wildlife issue and will be addressed in the analysis.

F. MISCELLANEOUS

Comment 1. Concern for impacts on wildlife winter range.

Response: This is a wildlife issue and will be addressed in the analysis.

Comment 2. Concern for adverse effects that noise will have on the wildlife.

Response: This is a wildlife issue and will be addressed in the analysis.

IV. WATER QUALITY, AIR QUALITY, FISHERIES, NOISE

ISSUE: What will be the effects on surface and groundwater quality?

ISSUE: What will be the effect on fisheries?

ISSUE: What will be the effects on air quality within and adjacent to the project area?

A. WATER QUALITY

Comment 1. Concern that the water quality would be adversely impacted. The concern involves surface water, and impacts on ground water (including rate and direction of movement and quality). Concern that the drilling fluids used contain toxics that could affect the subsurface environment and hydrology.

Response: This is a water quality issue and will be addressed in the analysis.

Comment 2. Concern that a pipeline could rupture and contaminate the streams and water supply for downstream users. Also concern that a sweetening plant would need to be located close to the drill site and the pipeline would expose stream crossings to the contamination.

Response: This is a water quality issue and will be addressed in the analysis.

Comment 3. Concern that changing well casings has serious chance of polluting the water table.

Response: The well will be cased with casing that is rated for service in H_2S environments. The well will be drilled with freshwater muds, a combination of fresh water and a nontoxic clay (bentonite). If the mud weight needs to be increased a naturally occurring compound (barite) will be added. Barite is chemically $BaSO_4$ and is ground and used to add weight to paper, cloth, drilling mud, etc. When the casing is cemented in the ground it will not be removed. If the well was a producer, the only thing that might have to be changed would be tubing that goes inside the casing. When the well is abandoned, cement plugs will be placed across any formation that might contain fresh water. These plugs would protect the formations from contamination by fluids from other formations.

Comment 4. Concern for the reduction of water quality resulting from the road building. Concern that the sedimentation, siltation, runoff, and erosion potential of the unstable soils will cause undue impacts to the water quality.

Response: This is a water quality issue and will be addressed in the analysis.

Comment 5. Concern that the increased sedimentation from the road building would impact the riparian habitat.

Response: This is a water quality issue and will be addressed in the analysis.

B. FISHERIES

Comment 1. Concern for the potential impacts to the fisheries in the area.

Comment 2. Concern for the siltation effects on the spawning fish.

Comment 3. Concern for the injury and mortality to upstream and downstream fish from dams, diversion structures road crossings, and impoundments.

Comment 4. Concern that a full field development be considered on the downstream fisheries of Badger Creek and Two-Medicine River on the Blackfeet Reservation.

Comment 5. Concern for the effect that hydrogen sulfide (H2S) will have on the trout.

Response: All of the fish comments above are part of the Fisheries issue and will be considered in the analysis.

C. AIR QUALITY

Comment 1. Concern for the effects to the air quality with the road construction, hydrogen sulfide (H2S) gas exposure potential especially with the wind patterns in the area, potential H2S problems from blowouts, reduction in air quality from the additional traffic, and any burning. Concern about the road dust.

Response: An H_2S contingency plan has been prepared by the company and submitted along with the APD. This plan is consistent with safe drilling standards established by the American Petroleum Institute and Federal agencies. The EIS will include additional Information on air quality analysis.

V. ROADS

ISSUE: How will access be managed to accommodate other resources and uses?

A. ROAD BUILDING (GENERAL)

Comment 1. Concern for the adverse impacts of road building in general...some do not want to see any additional roads in the area.

Comment 2. Concern that the roading will have an impact on the wildlife in the area and the T&E species (wildlife habitat, migration, riparian zones).

Response: The above comments are part of the road issue and will be addressed in the analysis.

Chevron

Comment 3. Concern that the road construction be carefully monitored. Concern that once rules are established for the drilling that they should not be changed. Concern that the government agencies monitor all phases of the project.

Response: The BLM will have Petroleum Engineering Technicians and the Forest Service will have resource managers on location from the time of spudding until the well is completed, on a regular basis. During the drilling operations the technicians will visit the site at least once a week. In certain instances, such as initial blowout preventer testing, cementing of surface casing, any plug back operations, abandonment, and other special operations, the BLM technicians will be on location to witness operations. The BLM specialists will work with the Forest Service personnel during rehabilitation of the site if the well is a dry hole. If the well became a producer, the BLM technicians in conjunction with the Forest Service would make a regular inspection of the facilities.

A Forest Service Construction Engineer familiar with the mitigation measures imposed upon the project will be onsite throughout the road construction period. All guidelines established for this project will become a part of the APD and remain in effect during the life of the project, unless site conditions are encountered which differ from those previously expected.

Comment 4. Suggests that the road use could be restricted to travel on the road at preset hours and avoid undue impacts to wildlife.

Response: This is part of the road issue and is addressed in the analysis.

B. SPECIFIC ROUTES

Comment 1. Concern that the long routes will have the most impact so favor the shorter routes.

Comment 2. Interest in seeing Route 1 (Two-Medicine), used if the drilling is approved. The route should be reconstructed to minimum standards.

Comment 3. Concern that Route 1 (Two-Medicine) is a poor route choice - length, good trail access now, length of time it would take to revegetate. Also the South Fork of the Two-Medicine is an essential wildlife corridor between the Park and Bob Marshall Complex.

Comment 4. Concern that Route 5 (From Flathead Forest) is poor choice.

Comment 5. Concern that Route 3 (Badger Creek) is a poor choice because it would jeopardize the fishery and affect the moose in the Upper Badger.

Response: All of the above comments on specific routes are part of the road issue and will be considered in the analysis.

C. ROAD MANAGEMENT

Comment 1. Concern for the management of the road after drilling and while activity is occurring. Questions on temporary vs. permanent, road open to the public vs. road closures, control access...who can use it?

Comment 2. Concern that without adequate and enforceable road closure the wildlife will be subjected to increased poaching and pressures from legal hunters because of easy access to the wildlife.

Comment 3. Question if road could be used for accessing timber after the drilling completed. Concern that if the road is closed after development will an economic analysis be done on the economic losses from not allowing the removal of timber.

Response: Long-term use of access will be considered in the EIS, however, access for National Forest timber harvest will not be a consideration. The timber stands in the area are relatively young (+ 50 to 85 years old) and healthy with no need for immediate harvest. The Lewis and Clark Forest Plan does not project any scheduled harvest for the Badger-Two Medicine Unit during this planning cycle (the ensuing 10 to 15 years). Should there become a need for harvest (i.e., fire, insect salvage and indian purposes) appropriate analyses (economic and environmental) will be conducted.

D. HELICOPTERS

Comment 1. Concern that roading will be a major problem and that helicopter access should be considered carefully.

Response: Helicopter access will be considered in the EIS.

E. MISCELLANEOUS

Comment 1. Concern that roadbuilding on the reservation will not benefit the Blackfeet only Chevron.

Response: Chevron will have to obtain right-of-way permits from the Bureau of Indian Affairs for any portions of an access road on the Blackfeet Reservation. The Bureau of Indian Affairs will charge Chevron for these right-of-way permits. This money will go to either the tribe, if the road crosses tribal lands, or the allottee, if the road crosses alloted land. This would be a direct monetary benefit to the allottee or Tribe.

Comment 2. Concern that with such a small chance of discovery, how can roads be justified?

Response: There is a small chance for a discovery. For a wildcat project Chevron expects the chance is less than one in ten to one in fifteen for a commercial discovery. That is the nature of exploration of new areas - very high risk. Oil companies will commit a certain amount of funds to high risk areas in the hopes of new field discovery. Over the long term, the high risk expenditure is expected to yield new production and pay for the risk.

Comment 3. Comment that road building will be beneficial in the event of a range fire to provide access.

Response: This is a road issue and will be addressed in the analysis.

Comment 4. Concern that restrictions on road standards should be carefully designed with consultation with the operators so that the restrictions are realistic and not a serious cost problem.

Response: Basic road standards for exploration roads are specified in the Forest Service R-1 publication "Guidelines for Oil and Gas Development", Sept. 1983. Additional standards will be developed for the preferred alternative to conform with the specific conditions associated with that alternative. For example: turnout spacing, surfacing requirements, drainage, ditching, surface drainage.

Chevron

Comment 5. Concern that the safety of the route to be considered be kept in mind since operators will be travelling in all weather conditions.

Response: This is a road issue and will be addressed in the analysis.

VI. AMERICAN INDIAN RELIGIOUS FREEDOM, TREATY AGREEMENT

ISSUE: How will the proposal affect American Indian Religious Freedom rights?

ISSUE: How will the project affect rights accorded to the Blackfeet Tribal Members under the 1896 Agreement?

A. INDIAN RELIGIOUS FREEDOM

Comment 1. Concern that the area being considered is significant to the Blackfeet for the practice of traditional religious practices and the area is one of the few remaining undisturbed areas where these religious cultural practices can be experienced...concern for noise disruption, disruption of the sacred grizzly bear, need to inventory archeological sites and cultural sites for protection for their spiritual values. Concern that the Grizzly Bear is the most sacred object of at least one of the religious societies, and that there are few undisturbed areas left suitable for this ongoing original worship.

Response: This is part of the American Indian Religious Freedom issue and will be considered in the analysis.

Comment 2. Concern that the name Running Owl is significant to the Native Americans.

Response: A Sundry Notice has been filed by Chevron USA to change the name of this well to the Badger Creek Federal 1-35-2D.

B. TREATY AGREEMENT

Comment 1. Concern that the Blackfeet retain certain rights to access the area under the Treaty Agreement and question how the access can be controlled during and after the drilling would take place.

Comment 2. Concern that the tribal hunting and fishing rights would be affected and also the subsistence hunting could be affected causing problems for individual tribal members. Concern for the economic hardship imposed on locals who rely on hunting in the immediate area for subsistence.

Comment 3. Concern that the timber rights of the Tribe would be affected.

Response: The comments above regarding the treaty agreement are part of the treaty rights issue and will be addressed in the analysis.

Comment 4. Concern that the Blackfeet Treaty Agreement is under study and the Tribal rights in general are not resolved...the Treaty may not be legal. Question of ownership of the land.

Response: During the scoping process conducted for Chevron's Federal 1-35 drilling application, several concerns were voiced as to Blackfeet Indian rights under the 1855 Treaty or Agreements ratified by Congress in 1896.

Federal administration of that portion of the land divested from the Blackfeet Indian Reservation (the "ceded strip") is premised on the condition that the Agreement with the Indians of the Blackfeet Indian Reservation in Montana entered into on September 26, 1895, and ratified by the Act of June 10, 1896 (20 Stat. 321, 353) is a legal document.

Article I of the Agreement states that:

> "For and in consideration of the sums of money to be paid and the obligations assumed on the part of the United States, as hereinafter set forth, said Indians of the Blackfeet Reservation hereby set forth and release to the United States all their right, title, and interest in and to that portion of their present reservation in the State of Montana lying and being west of the Following described line to wit:....."

The article goes on to state:

> "That said Indians shall have, and do hereby reserve to themselves, the right to go upon any portion of the lands hereby conveyed so long as the same shall remain public lands of the United States, and to cut and remove therefrom wood and timber for agency and school purposes, and for their personal uses for houses, fences, and all other domestic purposes: And provided further, That the said Indians hereby reserve and retain the right to hunt upon said lands and to fish in the streams thereof so long as the same shall remain public lands of the United States under and in accordance with the provisions of the game and fish laws of the State-of-Montana."

Legal Council for the Blackfeet Tribe has supplied the Forest Service with a Position Paper of the Blackfeet Tribe on the 1895 Agreement Lands (dated February 14, 1985). Regarding mineral rights on that portion of land divested from the Blackfeet Indian Reservation, the Blackfeet position paper states that oral history of the Blackfeet holds that at an unreported session, the Blackfeet were told that they could agree to a fifty year mining lease. The Blackfeet position on this matter was "To turn this oral history into evidence in any legal case, this oral history must be gathered from the memories of the Blackfeet people. The papers of the government agencies and of the men involved must be carefully researched. The Blackfeet Tribe takes no official stance on this matter at this time. The Blackfeet Tribe will carefully consider the evidence gathered on this matter by the Lewis and Clark Project prior to determining what type of legal resolution it will seek on this issue."

Comment 5. Concern that the Tribe retains certain employment preference and questions concerning the percentage of Native Americans that would be provided employment with the project.

Response: In their February 14, 1986 Position Paper, the Blackfeet Tribe asserts that the 1895 Agreement includes a provision for Indian preference in federal employment. The assertion is predicated on Article III of the 1895 Agreement which reads:

> "It is agreed that in the employment of all agency and school employees preference in all cases be given to Indians residing on the reservation who are well qualified for such positions."

The Forest Service interprets this to mean that Indians residing on the reservation be given employment preference for Agency (BIA) and school positions, a matter over which the Forest Service has no jurisdiction. Although the Forest Service does not have statutory authority to grant preference per se, it does make special efforts to employ the Blackfeet. On February 5, 1986 the Tribe and Forest Service signed a Human Resource Cooperative Agreement that provides opportunities to train and employ Tribal members for certain tasks.

Comment 6. Concern that the mineral rights may belong to the Tribe. Question whether it is a wise use of tax money to pursue the studies when a lawsuit related to ownership can be expected.

Chevron

Response: The BLM issued the lease to Chevron in 1981 under the premise that the United States owns the mineral estate under lease. The agencies will process Chevron's APD under the same premise. Since the United States Government maintains that it owns the lands in question, it is appropriate for the Forest Service (FS) and Bureau of Land Management (BLM) to meet its administrative responsibilities regarding the lands in question. Also, see response to comment 4 above.

VII. SOCIAL AND ECONOMIC IMPLICATIONS

ISSUE: What will be the social and economic benefits and costs associated with the project?

A. ECONOMICS

Comment 1. Concern that the project is not economically feasible and that the short-term vs. the long-term benefits must be considered. Question the economic benefit in general. Concern of how the oil prices will affect the APD. Question whether Chevron will get a tax break on the road construction.

Response: The EIS will briefly address oil and natural gas prices along with exploration and production in this area. However, it is not possible to predict how oil prices will influence Chevron's decisions concerning exploration and development of oil and gas. Price and market uncertainty will continue to make long-range planning difficult for the oil and gas industry. While oil prices have been dropping, natural gas prices have remained relatively stable and a change in oil prices may have no influence on this APD. Although a decrease in the price of oil will help improve economic growth outside the oil and gas industry, low prices and an oil surplus will curtail production in oil-producing areas. Low oil prices have substantially reduced drilling; well completions in 1985 were down 20 percent from 1984.

Comment 2. Concern that the local communities will not really derive any `real' benefit from the development because of the costs to their community will far outweigh the benefits. Communities will have to incur the costs of growth of their area with the increased burden for public services. Towns as far away as Choteau could even have an economic hardship...and Great Falls will not see any benefit.

Response: This is an economic issue and will be addressed in the analysis.

Comment 3. Concern that the local area derives a considerable percentage of their incomes from the tourist, hunting, recreation, and outfitting trade. Concern that the development will destroy or significantly affect the economic basis of the local area residents. One outfitter will be directly affected by this development and has many concerns for the future of his livelihood.

Response: This is an economic issue and will be addressed in the analysis.

Comment 4. Concern that the economic analysis consider the value of roadless, pristine, wildlife attributes, recreational opportunities, visual aesthetics, "quality of life" attributes available...the importance of intangible qualities of undisturbed areas must be taken into consideration in the economic analysis...especially when weighing the short-term vs. long-term effects. Human demand for wildlife resource in ecosystem.

Response: In the economic analysis a qualitative discussion of the aesthetic and intangible values will be included. While it is difficult to assess the economics of recreation use in an area it becomes even more difficult to quantify the values associated with aesthetics and intangible qualities. When possible (i.e. information available) we will use expenditure information for recreationists to show the benefit to the local economy, that is payments to outfitters, sporting goods stores, motels, service stations, etc.. At the same time existing information on local, regional and national attitudes will be used along with concerns raised during the scoping process--primarily public meetings. This includes the use of existing public opinion polls such as the Montana Poll on Wilderness and Resource Development, Attitudes Toward Oil and Gas Development Among Forest Recreationists, and Public Attitudes Toward Critical Wildlife and Natural Habitat Issues. Given the availability of other information sources, surveys on local or regional attitudes will not be conducted with this EIS.

Comment 5. Concern that undue delays or denial of the permit will diminish an important economic benefit to the state and the local communities...especially with high unemployment in the area. Feel that too much emphasis is put on the protection of the wildlife and not on the economics (taxable income to improve public and social services).

Response: The economic analysis in the EIS will assess the employment and income associated with this project along with the nonrenewable natural resource taxes for the County and State such as the resource indemnity tax, oil and gas producers privilege and license tax, oil and natural gas severance tax and net proceeds tax. Economics is one of several criteria or factors that will be used in the decision analysis.

B. SOCIAL

Comment 1. Concern for the social impacts to the local communities that an increased number of people would bring...change in the "quality of life."

Response: This is a social issue and will be addressed in the analysis.

VIII. VEGETATION/NOXIOUS WEEDS

ISSUE: What will be the effects on vegetation in the area; including rare plants, introduction of noxious weeds, and use of herbicides?

A. VEGETATION

Comment 1. Concern for the vegetation that would be lost or damaged as a result of the development.

Comment 2. Concern for the impact to rare or endangered plant species in the area from construction activities.

Comment 3. Concern for the use of herbicides, biocides, pesticides or other toxicants as well as any potential disturbance of sediments containing these substances during construction or operation.

Comment 4. Concern that Zager (1980) found that bulldozer blades ruin rhizomes of berry producing plants, eliminating these species in some cases ... these are the plants found in the riparian zones.

Response: All of the comments above regarding vegetation are part of the vegetation issue and will be addressed in the analysis.

B. NOXIOUS WEEDS

Comment 1. Concern that the road building and associated developments will hasten the spread of noxious weeds in the area...unless proper and precise reclamation procedures are required.

Response: This is a vegetation issue and will be addressed in the analysis.

IX. NEED FOR THE OIL AND GAS

A. NEED

Comment 1. Concern that the EIS show the National need for the oil and gas, especially with the present oil glut. Cannot see that this development will lessen U.S. dependency on foreign reserves.

Response: While the need for oil and gas is not a determining factor on whether to issue the APD, such information would be helpful in characterizing the social and economic consequences of the petroleum development along the Front. This is discussed in Section VII. - *Social and Economic Implications*.

The determination of need for oil and gas was considered in the Lewis & Clark National Forest Nonwilderness Oil & Gas Leasing EA and as such the decision to lease was based in part on this analysis. Grounds for denial of an Application for Permit to Drill (APD) must be made in accordance with provisions of the lease. Since the determination of need was considered prior to leasing, no provisions in the lease allow for denial of the APD on this basis.

In summary, need is not a criterion which would lead to denial of an APD. Under the present oil and gas lease, the lease-holder has a legal right to conduct activities on the lease in accord with the provisions of the lease. Denial of the APD will be evaluated as an alternative in the analysis. The APD could be denied based on unacceptable surface resource effects and noncompliance with lease stipulations but not on the basis of need.

Comment 2. Concern that without the drilling exploration, the U.S. will continue to rely on foreign reserves; the U.S. should be establishing lasting reserves rather than losing the potential by not drilling.

Response: See above response under comment IX.A.1.

Comment 3. Concern that the potential for discovery be explained.

Response: See response under item V.E.2.

Comment 4. Concern that alternative energy sources should be researched and developed.

Response: Alternative energy sources are being researched and developed by the Department of Energy and various State and private industries. The Charter of the Forest Service does not include research into fuel resources. Also see response to (A-1) above.

Comment 5. Concern that Chevron be financially secure and able to follow through with the project, if approved.

Response: See response under VII. A-1.

Comment 6. Question - Will the current price determine the ultimate selling price if the company decides to delay production.

Response: Selling price is a function of daily market conditions.

Comment 7. Concern that the leases are not legal considering the findings of Connor vs. Burford...The leasing EA does not adequately fulfill the requirements for a comprehensive analysis as required by NEPA and the Endangered Species Act. Also, the Tribal rights have not been fully resolved (ownership).

Response: The Connor vs. Burford decision was in response to a specific lawsuit concerning leases on the Flathead and Gallatin National Forest. The scope of the decision is limited to these forests. Tribal rights see VI. B1-4.

X. RECREATION

ISSUE: What will be the effects on dispersed and developed recreation?

A. RECREATION

Comment 1. Concern that the development will adversely affect the semi-primitive and primitive recreation qualities of the area - hunting, fishing, backpacking, hiking..."Quality of Life" concept (wild, natural, solitude).

Comment 2. Encouraged that the development will provide better access for recreationists visiting the area...and that access will not cost the taxpayer any money.

Comment 3. Concern that there may be an increased number of recreation visitors to the area causing additional pressures on the recreation resources. Concern for how future recreation use will be mitigated with oil and gas activities...Also, questioning how the impact of drilling will be mitigated during peak recreation periods.

Comment 4. Effects of noise on recreation.

Response: All of the above comments regarding recreation are part of the recreation issue and will be considered in the analysis.

XI. LAW ENFORCEMENT

A. REGULATIONS

Comment 1. Concern that past seismic guidelines have not been enforced and concern that an adequate law enforcement plan may not be able to be implemented ...also, concern that the large area for coverage may not be feasible even with an interagency law enforcement plan.

Response: An interagency law enforcement plan has been established for the Hall Creek project. This plan was developed in response to issues identified in the Hall Creek study. A similar plan would be prepared for Chevron's project, should such mitigation be needed to ensure compliance with the laws.

Comment 2. Concern that poaching has been a major problem in the past and additional roading will compound the problem.

Response: See response to previous comment.

XII. MITIGATION

Comment 1. Concern that mitigation measures identified in the EIS be assured reliable funding.

Response: At the agencies' request the Congress provides funding annually to administer Federal lands and programs. The FS and BLM would determine how much funding is appropriate for the project in question. In addition, the agencies will hold a bond to ensure adequate performance of the permitted activity. Bond money may be used by the agencies to remedy any problems or mitigate impacts caused by actions of the lessee that are not authorized in the permit.

XIII. HEALTH & SAFETY

ISSUE: Will the project affect health and safety for humans and wildlife in the immediate area and nearby communities?

Comment 1. Concern about health and safety if there is a well blowout and the need for the development of a emergency evacuation plan for the surrounding area if a blowout should occur.

Comment 2. Concern for wildlife, fish, and vegetation, if a blow out should occur, and the emission of hydrogen sulfide gas.

Comment 3. Concern about the air quality and human health risk if hydrogen sulfide gas escaped into the atmosphere and what the effect would be on nearby communities and the people who use the area.

Comment 4. Concern about a gas leakage from the sweetening plant.

Comment 5. Additional access to area will increase pollution.

Comment 6. Concern that the H2S gas could cause wildlife mortality as in Wyoming.

Comment 7. Concern that the drilling will involve the use of toxics that could affect the wildlife.

Comment 8. Concern that the grasses will be affected and in turn harm the wildlife.

Response: All of the above comments regarding health & safety are part of the health & safety issue and will be considered in the analysis.

Comment 9. For safety reasons access to the area should be limited.

Response: During the drilling of the well, access to the site would be restricted to personnel necessary to drilling operations. The public would be restricted because of the potential danger of an accidental escape of H2S gas, if any was encountered while drilling. A contingency plan will be required and this plan will give the points where access would not be allowed.

XIV. IMPACTS ON GLACIER NATIONAL PARK/BOB MARSHALL ECOSYSTEM

ISSUE: What will be the effects on Glacier National Park and adjacent wilderness?

A. CONCERNED ABOUT THE EFFECTS OF ACTIVITY WITHIN THE ECOSYSTEM ON THE ENTIRE ECOSYSTEM INCLUDING GLACIER NATIONAL PARK, BOB MARSHALL-SCAPEGOAT-GREAT BEAR WILDERNESS COMPLEX AND THE BADGER TWO MEDICINE AREA.

Comment 1. Timber harvest, recreation, grazing and commerical outfitting may have increased importance to resources in the event of gas development.

Comment 2. Concern about the impact of development to the ecosystem and possible disturbance to wildlife.

Comment 3. Utilize the National Forest in a balance fashion while saving existing wilderness.

Comment 4. Concern about wintering of wildlife and the corridor for wildlife between Glacier National Park and the wildernesses. The Badger-Two Medicine area is a major part of the corridor and development activity "may create an effective barrier". Even if roads are closed it would be an improved access for recreation. Concern that the fragmentation of the habitat will disrupt migration and cause a reduction of the gene pool.

Comment 5. Concern about the effect of development on wildlife in the Bob Marshall and Great Bear.

Comment 6. Concern about the effects of development on the visual, water and air quality for the ecosystem.

Comment 7. Concern about the effects of development on ecological and aesthetics of Glacier National Park.

Comment 8. Concern about the effects of development on the wolves that live in Glacier National Park.

Comment 9. Concern for the effect of development on grass in Glacier National Park.

Response: The above comments regarding impacts on surrounding lands are part of the Glacier Park/ wilderness issue and will be considered in the analysis.

XV. ROADLESS AREAS, WILDERNESS AND AESTHETICS

ISSUE: How will the project affect the wilderness characteristics of roadless lands in the Badger-Two Medicine area?

A. CONCERNS WERE EXPRESSED ABOUT HOW DEVELOPMENT WOULD AFFECT WILDERNESS, ROADLESS AND AESTHETIC CHARACTERISTICS OF THE AREA.

Comment 1. Concern about the possibility of roads being constructed in a roadless area and the wilderness potential of the area being destroyed. Roads would prevent the area from remaining primitive and wild. Also, with one well approved, eventually a networking of roads would be likely...destroying the roadless character.

Comment 2. Opposes oil and gas drilling in roadless areas. Oil and gas is a short term use. Wilderness values are long-term.

Comment 3. Protection of the ecology and roadless condition of this area particularly the Endangered Species Act should not be violated for drilling.

Comment 4. Should preserve areas in pristine state as it is a precious resource that can never be created again.

Comment 5. Land should be valued because it's nonproductive.

Comment 6. Effects on the ecosystem of human demand for wilderness resource.

Comment 7. Development will increase human access to the area.

Comment 8. Wilderness qualities of the area must be outlined.

Comment 9. Concern about the effect of development on visuals and aesthetics.

Comment 10. Outfitter has proposed a dividing line for wilderness and development in the Badger-Two Medicine area.

Response: All of the above comments regarding wilderness characteristics/aesthetics are part of the roadless issue and will be considered in the analysis.

Comment 11. Wilderness designation for Badger-Two Medicine area, as it has pristine qualities for potential wilderness.

Response: The Badger-Two Medicine area was studied as part of the RARE I and RARE II process to determine its suitability for wilderness classification. The lands were also re-examined in the Lewis and Clark National Forest Plan. These lands have never been recommended for wilderness classification because they are lands that were ceded to the Federal government under the 1896 Agreement with the Blackfeet Tribe. Under the Treaty Agreement, the Blackfeet have retained the right to remove timber for personal use purposes such as post and pole operations on the Reservation. Timber harvest is not an activity compatible with the intent of the Wilderness Act; therefore, the lands have never been recommended for wilderness. The Blackfeet Tribal Council has written the Montana Congressional Delegation requesting that this area not be included in the wilderness system. The environmental analysis for the Chevron proposal will consider the loss of recreational values and the effect of the proposed project on the pristine and wilderness related values of the area. The analysis **will not** consider the area for consideration for wilderness designation since it already has been analyzed as part of the RARE I and II and Forest Planning Processes.

Comment 12. Consider moritorium on oil/gas exploration until wilderness allocation is completed.

Response: Oil and gas leases convey to the leaseholder certain lease rights. One of those is the right to explore the lease. The FS and BLM do not have authority to deny such actions other than through lease stipulations and the laws relating to the administration of the Federal lands. In this instance, wilderness reviews in both the RARE II study and the Lewis and Clark Forest Plan did not indicate the roadless lands in the Badger-Two Medicine should be designated wilderness.

Comment 13. Designate as a wilderness without human involvement except Blackfeet Elders.

Response: The Forest Service does not have the authority to designate wilderness, only Congress can classify lands as wilderness. The lands in the Badger-Two Medicine have not been recommended for wilderness classification by the Forest Service during either the RARE I and II or Forest Planning Process. When lands are considered for wilderness suitability, many items are analyzed. Public sentiment is only one of several items considered. The opinion of all individuals would be considered in such a decision, one group's opinion could not be given more weight. Considering only the Blackfeet Tribe, the Tribal Council has written the Congressional Delegation opposing additional wilderness in the area. This may be a different perspective than that of the Tribal Elders, but both points of view must be considered.

XVI. RECLAIM THE AREA

ISSUE: How will areas of disturbance be reclaimed following completion of the project?

A. RECLAMATION OF THE AREA IS A CONCERN. THE CONCERNS FOCUS ON BOTH A DRY HOLE AND FULL DEVELOPMENT.

Comment 1. Concern for reclamation of disturbed area including the riparian areas. Stipulations for reclamation of roads and well site even if well is dry.

Comment 2. Concern about revegetation on fragile soils. Reclamation should be done with only native species.

Comment 3. Reclamation should be part of all drilling proposals including well site and roads. What reclamation problems are there in this area and how long will reclamation take. Reclamation could be a problem because of the dry windy environmental conditions.

Comment 4. Once Forest land is violated it is impossible to bring it back.

Comment 5. With compliance that is required to reclaim an area a site should look as it did before the development after reclamation.

Comment 6. Any new roads should be built only if they can be totally reclaimed - landscaping, and grass seeded.

Comment 7. The EIS must provide adequate discussion and disclosure of (including map graphics) "Landtype Limitations" information, impacts, and landtype grouping methodology.

Response: All of the above comments regarding reclamation are part of the reclamation issue and will be considered in the analysis.

XVII. QUESTIONS

A. EIS

Question 1. Why is another EIS needed for the same general area of Hall Creek? Seems to me to be a waste of time and money.

Answer: The National Environmental Policy Act requires that Federal agencies review the environmental effects of their decisions. The environmental analysis for Hall Creek was documented in an Environmental Assessment (EA). The agencies decided to document the environmental analysis for Chevron's proposal in an environmental impact statement (EIS) because of the unknown mineral potential, and the potential effects on a roadless environment for which their is indicated public interest for wilderness designation. Information from the Hall Creek study will be applied to the Chevron study as applicable.

Chevron

Question 2. I'm concerned that you might be spending too much money complying with the public laws that require EIS's.

Answer: The costs for conducting environmental studies must be balanced against the value of findings from such studies. In this situation, high value resources, the uncertainty of future oil and gas discovery, and a high level of public concern suggests that a comprehensive analysis is appropriate.

Question 3. My understanding is that EIS's are required when the decision will have or is expected to have, a significant impact on the quality of the human environment. What is the "significant impact" in this situation?

Answer: The proposed drillsite lies inside the boundary of an area that was reviewed for wilderness potential under RARE II and recommended for nonwilderness. This area was reviewed again in 1983 in the Forest Plan for wilderness potential and was recommended for nonwilderness. Chief's policy for activities in RARE II recommended nonwilderness areas requires that an analysis must be conducted to determine: (1) whether the area affected by the activity remains essentially roadless and undeveloped, and (2) if the activity in question is likely to have a significant effect on wilderness characteristics of the area. This analysis is to be site-specific and must address in reasonable detail the effects of the activity on wilderness characteristics of the area. Because of the geologic uncertainties regarding oil and gas discovery and possible petroleum production in the unroaded area of the Badger-Two Medicine Unit, particularly in light of public concern that some or all of this area be designated wilderness, this study will be documented in an environmental impact statement.

Question 4. What is your rationale for insisting that Chevron prepare a full EIS for this proposed project? Why is this considered a major Federal action requiring an EIS?

Answer: The FS and BLM will be preparing an EIS (not Chevron). The reasons for the EIS are discussed in the previous comment.

Question 5. Does the present EIS cover each or any future well?

Answer: The Chevron EIS will evaluate the effects of exploration activity and eventual production for all wells currently proposed or permitted in the Badger-Two Medicine Unit.

B. EIS TEAM

Question 1. Would like to see more tribal members on the ID Team.

Answer: The Blackfeet Tribal Council has committed to appoint one person to represent the tribe on the I.D. team.

Question 2. I oppose the BLM being the agency to make the decision regarding the Chevron proposal for two reasons: 1) The resources involved lie on or under Forest Service land. The Forest Service should be the location of the decision, 2) by having the BLM in charge it appears to me that the "cards have been stacked" for approval of Chevron's proposal.

Answer: By law, the Secretary of Interior is responsible for issuing and otherwise administering oil and gas leases on Federal lands. The Secretary has delegated this authority to the Bureau of Land Management (BLM). The BLM, under interagency agreements and policies, considers the recommendations of the FS for any lease-related decisions made on National Forest lands. Because the proposed project is located primarily on National Forest the FS is the lead agency in compiling the EIS. The information in the EIS will be available to both agencies in making their final decisions on the APD.

Question 3. Why is someone from Missoula the EIS Team leader? Can he view the facts with an objective mind? Will he be heavily influenced from the wilderness and environmental groups based in Missoula?

Answer: To properly conduct an EIS requires a team leader with both a good technical background in resource values and leadership ability. Mr. Yogerst has high qualifications in both these categories. He has considerable experience in other interagency studies. His record shows his ability to objectively consider all resources and concerns, and he is responsible in dealing with the public and other agencies that have a stake in such decisions.

Question 4. How can you possibly justify the action of absence of industry input during the study. (thinks the team is sided towards environmentalists).
Answer: The environmental analysis will be made using information in Chevron's permit application. A petroleum engineer, civil engineer and geologist on the ID team will provide technical expertise for the study. The agencies may also request additional information from Chevron if necessary.

Question 5. The list of interdisciplinary team members includes no botanist or community ecologist. The team seems incomplete and unbalanced in the direction of geotechnical expertise without such a person or persons.

Answer: Wayne Phillips, Forest Service Ecologist/Ecosystem Coordinator and will be working with the ID team.

Question 6. Why is a soil scientist in charge of the EIS team? The most important and volatile issues involved are wildlife. The wildlife biologist should be in charge.

Answer: Refer to question 3 response. The EIS study team includes several biologists both from the FS and the Montana Department of Fish, Wildlife and Parks. In addition, the U.S. Fish and Wildlife Service has a responsibility to review decisions made by the FS and the BLM for effects on the grizzly bear (and other T&E species). In light of the above conditions, we believe the grizzly bear and other wildlife will get proper review in the EIS.

C. WILDLIFE

Question 1. Cumulative Impact Model and associated computer software is *not* ready for use. Therefore, why are you proceeding with evaluating the Chevron proposal when you can't properly do it - the tools aren't ready.

Answer: The model is being patterned after the Yellowstone model which is operational. The Lewis and Clark software is being developed and will be ready in time to evaluate the Blackleaf EIS as well as the Chevron proposal. The cumulative effects model (CEM) has been used successfully in other areas in the Region. The package will be adapted for use in this project by making some changes in the model. It is not expected that this will delay the study. The CEM will not be needed for this project until fall of 1986 since data needed to run the model will not be available until then.

Also, there are portions of the analysis that can be addressed prior to the completion of the CEM. In order to make a timely response to Chevron's request the team must begin the analysis as early as possible.

Question 2. Comments of appropriate agencies should accompany the EIS proposal through the review process. The draft EIS should disclose as Appendices all previous "Biological Opinions" submitted by the U.S. Fish and Wildlife Service with regard to oil and gas leasing in the Badger-Two Medicine Area.

Answer: Biological Opinions are rendered on a project-by-project basis. The Opinions that were rendered for the leasing EA and the Hall Creek projects were "non-Jeopardy". The Opinions are on file in the Forest Service office and if a copy is requested it can be mailed to the requesting individual. A Biological Opinion rendered on the Chevron project will be included in the EIS.

Question 3. Question the ethics of the oil company financing the habitat mapping.

Answer: The information that will be received from Chevron will be of the same quality that has already been done on the Birch-Teton Bear Management Unit. There have been checkpoints established in order to assure the quality is being provided. With declining budgets facing the Forest Service, we are seeking innovative and cost-efficient ways to collect resource data. Contracting services is one method of obtaining needed data. This data will not only be used for the analysis of the Chevron proposal, but will also provide the Forest with baseline data for future analysis needs.

Question 4. What is the criteria that will be used to determine detrimental impacts to grizzly bear or any wildlife. Threshold of approval or denial.

Answer: The cumulative effects model (CEM) will be used to assess impacts to the grizzly bear. An elk habitat effectiveness model will be used to assess the impacts on elk, deer, and moose, and the Rocky Mountain Front Guidelines will also be used for timing restrictions. Threshold levels for the CEM have not be established as of yet, but will be set prior to completion of the model.

Question 5. We do not understand why the Cumulative Effects Model (CEM) for the Badger-Two Medicine Bear Management Unit must cover lands that are a part of the Blackfeet Reservation. Federal agencies do not have jurisdiction over Indian lands, and therefore cannot control activities on those lands in order to protect the grizzly bear or for any other reason.

Answer: The bear management unit (BMU) was established as an area of land that contains sufficient amounts of constituent elements (spring, summer, fall, and denning sites) for sustaining viable populations of the bear. The Reservation contains some excellent spring and fall range. Although the Forest Service has no control over Indian lands, we must assess the impacts to bear habitat that is already in existence in order to determine what impacts may occur due to our management actions in the National Forest. This model can also be used by the Tribe and the BIA to assess management practices or proposals for that portion of the BMU that lies within the Reservation.

Question 6. Will the Forest Service's CEM be completed and debugged in time to address this APD? Will action be delayed, if necessary, in order to utilize the model?

Answer: The model will be functional in time to use it to assess the impacts. Action maybe delayed if some problem arises with the model. It is very unlikely that we would be able to complete a biological evaluation without a complete discussion of cumulative effects.

Question 7. Will the model itself and the data and assumptions used as input be available for review?

Answer: The information is public information. It will also be available with the EIS, at which time it can be reviewed.

Question 8. I have been told that the wildlife habitat and use data "being mapped and digitized for use in the CEM and ACA" is largely or wholly remote data. Is this the case? How much field checking of this data is taking place, and how is it being done?

Answer: Presently the Forest Service has two data collection efforts going. One is mapping by Landsat and the other by photo-interpetation (PI). Both procedures have on the ground verification. The number of plots taken to verify the PI types or landsat images vary. The vegetation plots being taken are being done by a standard sampling procedure that has been developed by the FS ecosystem management staff. This procedure is outlined in an ecosystem handbook. The plot information is designed to be used for applications beyond just grizzly bear analysis.

Question 9. Will the Forest base it's recommendation on the extensive development and impacts that would inevitably follow the discovery of a commercial deposit, or artificially limit the analysis to a single exploratory hole?

Answer: The EIS will analyze this APD and the Hall Creek APD through the production phase.

Question 10. Are there any areas that are set aside for only wildlife (plants or animals)?

Answer: There are no wildlife sanctuaries, refuges, or botanical areas established in the Badger-Two Medicine Unit. However Forest Plan management direction includes management emphasis for wildlife designation.

Question 11. I would like for you folks to outline for me where the gray wolves were sited, how many there are in the area and where they originated from?

Answer: There has been a history of sightings of the animals, including signs in the Badger-Two Medicine area. There has not been evidence of a pack but appear to be lone wolves dispersing from other areas to the North (Glacier National Park and Canada). This past winter (Jan-Feb) sign of 4-5 wolves were seen in the Two-Medicine lake area in Glacier Park by students working for Bob Ream (wolf ecology leader).

Question 12. Question the ethics of the oil company financing the habitat mapping.

Answer: The key to the success of this approach is directly related to the effort expended in reviewing the qualifications of the contractors hired to do the work and in developing appropriate standards for completion of the work. Similar work was contracted last summer to personnel of the Montana Department of Fish, Wildlife and Parks in the Bear Management Unit immediately south of the Badger-Two Medicine area. A separate contract was also awarded to the University of Montana to conduct ground plot checks and prepare a terrain model for the same area. The only difference this summer is that Chevron has agreed to fund a third-party contract to conduct the mapping in the Badger-Two Medicine area. The mapping requirements for Chevron's contractor will be the same as those used by the MDFWP and the University last field season.

D. ROADING/TRANSPORTATION

Question 1. The Two Medicine area has miles of old seismic roads running through it. These roads have never been taken care of, Why?

Answer: Many of these old roads date back to the 1950's when much of the geophysical activities that took place in this area required road access to move seismic equipment and recorders. At that time, the companies were not required to reclaim those disturbances. These roads have not been used for geological purposes for nearly twenty years and serve mainly as rough four-wheel drive roads or trails. They have been used primarily by hunters and few hikers. They are not maintained nor are they part of the Forest Transportation system and are impassable for a majority of the year.

Reclamation of several miles of these roads was one of the mitigation measures identified during the environmental analysis conducted for American Petrofina's Hall Creek drilling proposal. In the preferred alternative identified by the Forest Service, American Petrofina would have been required to erect road barriers to close off 4.6 miles of these roads to travel, and would be required to reclaim, revegetate and install erosion barriers to an additional 8.5 miles of old road. There may be an opportunity for additional reclamation measures to be stipulated as a result of the analysis conducted for Chevron's drilling proposal.

Members of the Glacier-Two Medicine Alliance organization are attempting to organize funding and/or manpower to reclaim several of these roads. The Forest wildlife biologists plan to fieldcheck these routes during the summer of 1986 to evaluate the use and possible effects on the wildlife in the area. Proposed closures will become part of the Travel Plan review during the winter of 1987. Decisions on management of these roads should be made by June 1987. Appropriate roads/trails will then be reclaimed or have erosion structures installed.

Question 2. Will the Forest base it's recommendation on the extensive development and impacts that would inevitably follow the discovery of a commercial deposit, or artificially limit the analysis to a single exploratory hole?

Answer: Refer to full field development issue.

E. MISCELLANEOUS

Question 1. I foresee the possibility of endless postponements, delays, extensions, etc. The lease was granted in good faith and this APD deserves prompt handling without bureaucratic footdragging.

Answer: Our study schedule indicates the final EIS will be completed in July 1987. A decision to deny or approve the APD will be made following completion of the EIS and, in the case of permit approval, identification of appropriate operation and mitigation requirements for the project.

Question 2. Will the studies, health and environmental, done on Pincher Creek in Alberta, Canada be considered when doing this EIS?

Answer: The Pincher Creek studies will be reviewed. The information will be used in this analysis to the extent that it is applicable to this project.

Question 3. We are concerned that the costs of the EIS not be charged against your wildlife budget, but against other budgets instead, because the EIS would not be done were it not for proposed development in the first place.

Answer: Each agency will pay for the contribution of its employees on the ID team. Costs not attributed to specific ID team members will be paid by the FS (as lead agency) out of funds tagged for that purpose.

Question 4. What kind of precedent will a discovery in this area set - as far as future APD's?

Answer: We are not aware that this project will set any precedent for future APDs.

Question 5. Who gets the money off the wells on the National Forest?

Answer: Oil and gas revenues from National Forest leases are distributed as provided by the 1920 Mineral Leasing Act and regulations promulgated thereunder. Under these requirements, 50 percent of the lease rentals go to the Federal Treasury and 50 percent goes to the State of Montana. Should there be production, 50 percent of the royalty income would go to the Federal Treasury and 50 percent would go to the State of Montana. The State's portion goes to the Department of Education and the Highway Department for school and road purposes.

Question 6. What is the possibility, if the permit is denied, of the land becoming Wilderness?

Answer: Wilderness designation can be made only by act of Congress. We will not speculate as to what action Congress might take in this instance.

Question 7. We feel that the Forest Service should conduct a public on-site inspection/tour of Chevron's Boulder Creek Well near Babb on the Blackfeet Indian Reservation adjacent to Glacier National Park to acquaint the public with the impacts of this kind of development.

Answer: The Babb site is not on a Federal lease, therefore, the APD may or may not contain the same permitting standards and controls used on National Forest leases. A review of this site, therefore, may not serve a useful purpose for understanding potential impacts on National Forest leases. Also, it is not within the interest of the Forest Service to review publically the actions of other land owners.

FINA ENVIRONMENTAL ASSESSEMENT - SCOPING DOCUMENT

The main intent of this first public review period was to ascertain the concerns that the public had about the project proposal. The comments would be used to identify an issues and concerns list and to develop some evaluation criteria for the analysis. The informational packet that was distributed at both open house sessions and from requests received, was designed to explain the process to be used in evaluating the project proposal; and to inform the public of some of the issues, concerns and alternatives that the Forest Service had identified. Response forms were enclosed in the information package; these forms were designed with three objectives in mind:

1. Identify issues to be addressed in the environmental analysis
2. Identify alternative courses of action and mitigating measures
3. Identify evaluation criteria to use in selecting a preferred alternative

A total of 79 individuals commented on the Hall Creek drilling proposal:

1. Twenty-five individuals from the East Glacier Community
2. Fifteen individuals from towns in the outskirts of East Glacier
3. Twenty individuals throughout the state and out-of-state
4. Eight oil company or exploration company representatives
5. Eleven environmental organizations

A content analysis was done on the comments made by the 79 respondents. The analysis was done by systematically subcategorizing each comment into the appropriate issue and concern category. For example, a comment such as "Increased access exposes wildlife to poaching..." was subcategorized in the major category ROAD LOCATION.

The following is a summarization of the comments received:

1. ROAD LOCATION

a. The potential for increased poaching in the Badger-Two Medicine area was a concern that several individuals expressed with any new road construction in the area. Better snowmobile access and the ensuing increased use of the area during the winter was also a concern expressed by several of the respondents.

b. An East Glacier resident, whose family owns land where the Alternative 'A' roading Alternative is located, was concerned that winter plowing to access the drill site would have a detrimental affect on the wildlife during the winter months. She also questioned the feasibility of physically removing the snow from an area where blowing and drifting is common place.

c. Although poaching was not specifically mentioned, many people have a general concern for the negative effects on wildlife with any increased road access. Several mentioned the effects that easier hunting access would have on the elk population in the area.

d. Even though helicopter access was not a major issue, several individuals commented on the detrimental effects that helicopter use seemed to have on their opportunities for viewing big game and the disruption of their recreation activities (i.e., horse users) during past geophysical exploration activities.

Other commented that helicopter use was not feasible because of the reoccurring high winds or the economic reasons.

e. Several comments or questions were made regarding the stability of the soils where road construction was being proposed. The Coalition for Canyon Preservation commented that the landtypes in the area were unstable for road building.

f. One individual commented on the timing of the road construction. This East Glacier respondent was concerned with new road construction in the spring, during the wettest time of the year. This individual feels that erosion and vegetation destruction in most susceptible during the spring.

g. Landowner directly affected by the road, was concerned that she would suffer an invasion of privacy during the road construction. She also questioned whether the road construction itself would affect her access to and from her property.

h. Individuals mentioned that roading would have a detrimental effect on the fisheries. Several others questioned the effects the bridge would have on the fisheries.

i. Individuals supported the Road 'A' Alternative. Five others indicated that if the project had to be approved, they would prefer Alternative Road 'A'.

j. One individual commented that the road should be located to maximize the other uses of the Forest.

k. Several respondents were concerned about the effects on water quality in conjunction with the road location and/or the actual drilling operation.

l. One person was concerned about the cost of the bridge construction; specifically questioned whether the public would be indirectly shouldering the costs.

m. Respondents expressed concern about the bridge, but were not specific.

2. ROAD MANAGEMENT

a. Several individuals wanted to see the road closed to public access after the drilling was completed.

Others felt that the road should be closed during the drilling.

A few respondents wanted the road open for use after the drilling.

b. One individual questioned whether the Forest Service had complete authority over a management decision to close or even reclaim the road after drilling. He questioned whether the Blackfeet Tribe could/would intercede in the road management decision.

c. One individual questioned who would monitor the road after the drilling was completed.

d. One respondent commented that the existing roads should be open to the public.

3. RECLAMATION - ROADS AND DRILL SITE

a. Although the comments were not specific, a couple of individuals made comments on the bridge. One individual commented that a concrete bridge implied permanence.

b. Many people wanted to see the road and/or drill site completely reclaimed after the drilling was completed. Several questions were raised as to whether the road could be adequately reclaimed; some even questioned the ability to reclaim the area.

c. Several other individuals were concerned with the procedures to be used if the first reclamation attempt was unsuccessful--would a second reclamation attempt be made?

d. The economics of reclaiming the area was also mentioned.

e. One respondent felt that successful reclamation is possible.

f. One individual requested that the road not be reclaimed at the end of the project.

g. Several remarks were made that the Forest Service probably would not reclaim the road once it was built.

h. One respondent wanted to see the site serviced by air after the reclamation.

i. One comment was made requesting the removal of the bridge after drilling; another suggested removing the bridge and reinstalling a pack bridge after drilling.

j. One individual wanted the road reclaimed on the the Federal land, but suggested giving the private landowners the road where it crossed their properties.

4. PUBLIC SAFETY

a. The comment was made several times by members of the East Glacier and surrounding communities that an inadequate job had been done on informing the public of the seismic activity during past recreational seasons. Horse users were specifically concerned about the Forest Service's ability to do an adequate job of posting and informing the recreationist of potential hazards associated with this drilling project.

b. Several respondents were concerned with the potential for toxic gas escape and the associated problems.

5. TIMBER

a. One individual felt the timber in the area was of non-commercial value.

b. One individual commented that the timber removed from the drill pad site and the roadway should be made available to the public.

c. Some comments were made that timber sales should not be permitted in the general area.

d. Individuals wanted the timber from the road and drill pad construction be given way to the public.

e. One respondent commented that roading would make the timber more accessible for removal.

6. BLACKFEET CEDED LANDS

a. One individual questioned whose authority would be upheld in the decision to close or reclaim the road.

b. Several respondents felt that the project would have a negative effect on the Tribe's hunting opportunities.

c. Several individuals merely stated that they had a general concern over the clarity of the Blackfeet Tribal rights in the area; others suggested that this project might reconcile the question of Tribal rights. Several individuals commented that the question of Tribal rights should be reconciled before a decision on the APD is made.

d. One individual questioned what would happen if the Tribe protested the development.

e. One comment suggested that the EA document consultation with the Tribe on this project.

7. CULTURAL RESOURCES AND RELIGIOUS FREEDOMS

a. Several individuals made general comments regarding examining the area for cultural resources and not interfering with Tribal religious practices.

8. RANGE

a. Several respondents felt that the number of range permittees should be retained and not increased.

b. One individual felt that existing range allotments should be cancelled.

c. A couple of people questioned how grazing would be affected if it was permitted to continue during the road construction and drilling activity.

d. One individual felt that grazing might be improved because of increased road access.

e. One person commented that disturbed areas should be resodded.

9. FIRE

a. Several people expressed a general concern about increased fire hazards due to the project.

b. One person specifically mentioned a concern over slash burning.

c. One person had a concern for burning off residue gases at the drill site.

d. One individual felt that fire would enhance wildlife habitat.

10. VISUAL RESOURCE

a. Many people commented on the project's destruction of the aesthetic values of the area.

b. Several others commented specifically on the effects the visibility of the road and drill site from Glacier Park would have on the aesthetics of the National Park.

c. One person commented that a permanent camp would negatively affect the visual quality of the area.

d. Individuals felt that the visual quality would be restored after reclamation was completed.

11. WILDLIFE (NON-THREATENED SPECIES)

a. Many people commented on the effects the project would have on the migration of the big game animals between Glacier National Park and the Badger-Two Medicine area.

b. Many people also commented that wildlife in general would be adversely affected by the project.

c. Several individuals commented that the availability of animals for recreational viewing and hunting was already in a downward trend; they felt that the drilling project would simply aggravate this situation and decrease the animal numbers even further.

d. Several respondents were concerned that wildlife winter range would be affected.

e. The disruption of elk calving was also a concern expressed by several individuals.

f. One comment was made that the 150 day project requirement period would conflict with the Forest Plan guidelines recommending these types of uses during the period 5/1 - 11/30 only.

g. Conflicts with black bears was addressed in one comment.

h. Problems with the fisheries as a result of the bridge and/or road construction was identified several times.

i. Respondents felt that the project would result in negative impacts on the birds in the area.

j. One individual felt that the activity should be discontinued during the hunting season.

k. Individuals felt that the proposed project will not be a problem to the deer in the area.

l. Three individuals commented that the project could be done without destroying the wildlife habitat.

m. One individual commented on the potential effects to moose in the area.

12. WILDLIFE (THREATENED SPECIES)

a. Many comments were received regarding the adverse effects the roads and drilling might have on the grizzly habitat.

b. Many people felt that a more detailed site specific wildlife study was needed in the area before the potential effects on wildlife could be accurately determined.

c. Several comments were made concerning the potential effects on wolf habitat.

d. One comment asked whether there would be seasonal shutdown stipulations for grizzly bear.

e. One individual questioned how recovery of the grizzly bear would be handled.

f. Respondents felt that a permanent bridge would pose a problem for wildlife in general.

g. One comment was made stating that the project would not pose any problems to threatened and endangered species.

13. ADMINISTRATION AND MONITORING

a. Many people questioned the Forest Service's ability to do an adequate job of monitoring and administering the drilling project. The general concensus was that all monitoring and administration should be highly visible to the public and the project should be watched very closely.

b. Several individuals questioned monitoring this project from an office located so far from the project site.

c. Individuals questioned where the adequateness of funding for monitoring program.

d. Individuals questioned whether Glacier National Park had been consulted.

e. One comment was made concerning the thoroughness of the existing wildlife data base.

f. One individual felt that production could be done without adverse impacts if it was done carefully and monitored closely.

14. NOXIOUS WEEDS

a. The potential proliferation of noxious weeds along the new road construction and drill site was a concern expressed by many respondents.

b. Had a concern over chemical application treatment of noxious weeds.

c. One respondent commented that horses are also a source of introduction of noxious weeds.

15. ECONOMIC AND SOCIAL

a. Many people felt that tourism, the main economic base in East Glacier, would be adversely affected by the project.

b. One individual wanted to know how the Forest Service will measure the effects of the project on the local residents. Two individuals were worried about the potential of changing East Glacier into a boom town.

c. Several people commented that the project would help East Glacier economy.

16. DRILL SITE

a. Several people felt that carrying firearms should be prohibited at the drill site and along the road.

b. Several respondents did not want to see the authorization of a permanent camp at the drill site.

c. One individual felt that if the camp were permitted, it should have only minimum facilities.

d. One individual questioned where the water supply source for the drill site would be located.

e. One individual wanted waste drill mud removed from the drill site.

17. DISPERSED RECREATION

a. Many respondents felt that the project would cause a general decrease in the recreation primitive qualities and characteristics of the area. They expressed a concern for retaining a buffer zone between Glacier Park and the Bob Marshall Wilderness.

b. Comments mentioned a negative impact on horse and outfitter guide opportunities.

c. Many individuals commented that the hunting and fishing opportunities would be reduced. They also mentioned that opportunities for viewing big game have substantially decreased in the past few years; this project would only aggravate the declining trend (See wildlife, non-threatened, item #3).

d. One individual requested that a parking area be constructed at the Markette property to provide fishing access along Alternative Road "A".

e. One respondent felt that Alternatives "B & C" were unacceptable because they would conflict with the historic recreation use in the area.

f. One comment was made that the area should not be closed to hikers or horsemen during the drilling period.

g. One individual wanted the area left open for snowmobiling after the drilling; another commented that snowmobiling should be permitted only after December 1.

18. DOWNHOLE CONCERNS

These concerns were expressed during the public comment period; they didn't apply to the specific categories addressed by the ID team. The majority of these comments were related to the environmental analysis process.

a. Two individuals mentioned that other agency's concerns (i.e., Glacier National Park, Blackfeet Tribal Council, etc.) should be documented during in the EA.

b. Felt that a "No Action" Alternative should be included in the EA.

c. Several individuals questioned how a field development proposal would be handled oil or gas were discovered on the site.

d. Many comments were received requesting the need for an Environmental Impact Statement on this project. Half of these comments were received on signed form letters.

e. Two individuals questioned whether the drill site could be moved closer to US Highway 2 to avoid the necessary roading with the proposed location.

f. Two comments:

1. How will the Forest Service gather information to adequately evaluate energy and mineral resource potential?

2. How high a priority will energy exploration be given in decision-making where resource values outweigh the existing surface values.

g. Two individuals questioned whether the RARE II evaluation was sufficient and whether the area would need to be re-evaluated for its "roadless" character before a decision on the APD was made.

h. Two respondents felt that park personnel should be on the ID team.

i. One person felt that the U.S. Fish and Wildlife Service should review the analysis to make an opinion on T&E species.

j. One individual felt that seismic activity already posed a large effect on wildlife when considering cumulative effects.

k. Advocated a 10-year moratorium on drilling in the area to postpone the decision on the APD.

l. Felt that the first three alternatives identified by the Forest Service were unacceptable based on the following argument:

Alternative #1, Deny No Need - the need to explore for oil and gas is not a condition which must be met before an APD is approved.

Alternative #2, Deny Based on Lease Stipulations - as long as the lessee's drilling program complies with the stipulations in the lease, denial of the APD based on this reason is not an option.

Alternative #3, Deny Cancel or Amend Lease - a lease can be modified only with the consent of the lessee or cancelled only if the lessee has violated the lease terms, it also cannot be a basis for denying the APD.

The final list of issues, concerns and opportunities includes the following:

PRELIMINARY ISSUES, CONCERNS, AND OPPORTUNITIES

1. ROAD LOCATION AND ROUTES

a. Several landtypes (soils) in the project area have potential slope stability hazards (land slides and slumps). How can these areas be avoided or effects be minimized?

b. Several landtypes in the project area are subject to moderate to high erosion potential that could lead to sediment in streams. How can these areas be avoided or effects minimized?

c. What will be the effect of this project on sedimentation in streams and water quality?

d. How will wildlife habitat, such as winter ranges and foraging areas be affected by the project?

e. How will access and use by summer and fall recreationists (hikers, horsemen, trailbikers, hunters) be affected?

f. How will winter recreationists (snowmobilers) be affected?

g. How do the proposed access routes conform to other area transportation needs?

2. ROAD MANAGEMENT

a. Will the access road be open or closed to the general public?

b. How will traffic resulting from company activities on the access road affect other resources and users?

c. How will traffic from public use on the access road affect other resources and uses?

d. What opportunities are available to reduce present vehicle use in the area?

e. What road permits, use permits and agreements will be required.

3. RECLAMATION OF ROADS AND DRILL SITE

a. How much of the access road will be reclaimed?

b. How much of the access road will remain for other resource management needs if exploration is unsuccessful?

4. PUBLIC SAFETY

a. What safety precautions will be taken to minimize hazards to other users, especially snowmobilers?

5. TIMBER

a. What opportunities are available to coordinate timber management transportation system needs with the proposed project?

b. Will the project affect rare plants identified in the Nonwilderness Leasing EA?

6. BLACKFEET CEDED LANDS

a. Will the project have an affect on the Blackfeet rights accorded to Tribal members in the 1896 Agreement?

7. VISUAL RESOURCE

a. Will the area's visual quality objectives be met? What effect will the project have on viewing from US Highway 2, private land, and Glacier National Park?

b. What changes in the existing visual condition will be made and what degree of change is expected?

8. WILDLIFE (Species not listed as Threatened or Endangered)

a. What effects will the project have on elk and elk habitat?

b. What effects will the project have on moose and moose habitat?

c. What effects will the project have on raptors, especially the nesting species?

d. What effects will the project have on black bear and bear habitat?

e. What effects will the project have on wildlife identified by the State as species of special concern?

9. WILDLIFE (Species listed as Threatened or Endangered)

a. How will the project affect threatened and endangered species and their habitat?

b. How will the following project activities affect threatened and endangered species - increased human and vehicle activity, crew camps, garbage disposal, fire arms, pets, noise levels?

10. ADMINISTRATION AND MONITORING

a. Can the requirements and mitigating requirements proposed by the BLM and Forest Service be met and enforced?

11. DRILL SITE

a. What effects will a crew camp have on other resources and uses?

b. Can the pad location be changed to avoid visual impacts, weather influences and other resource effects?

12. DISPERSED AREA RECREATION

a. What restrictions will be placed on the road or area that may affect present users (snowmobilers, hunters, trailbikers, hikers) of the area?

b. What opportunities exist to better manage existing 4X4 use in the area?

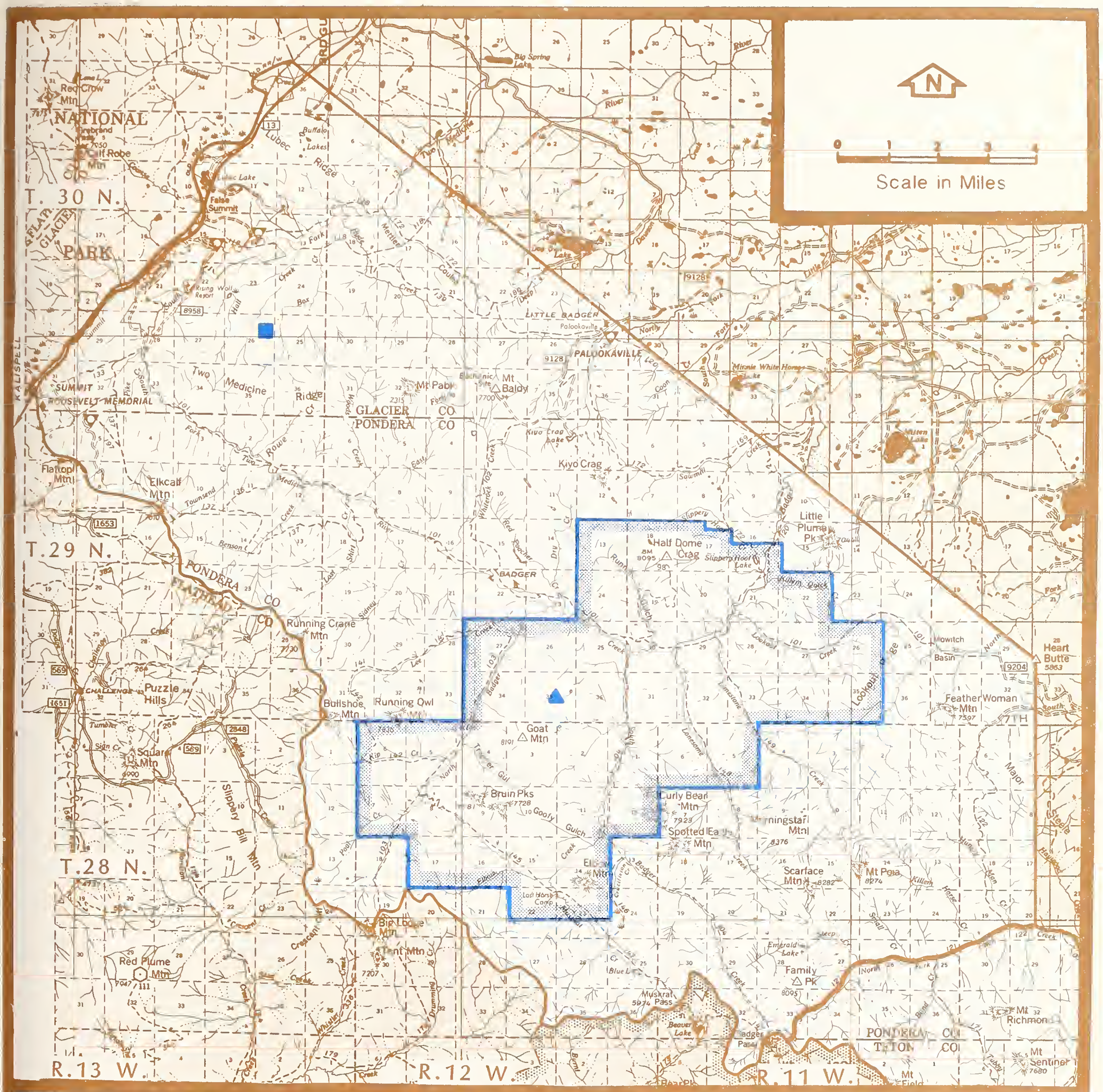
c. What opportunities exist to provide road and trailhead access across the South Fork of the Two Medicine River?

d. What effects will the project have on hunters, snowmobilers, backpackers, horsemen, outfitters, and trailbikers?

APPENDIX E

BADGER CREEK EXPLORATION UNIT

MAP



LEGEND

▨ Unit Boundary

▲ Chevron Well Site Location

■ Fina Well Site Location

MAP E-1

BADGER CREEK EXPLORATION UNIT

APPENDIX F

BIOLOGICAL EVALUATION

BIOLOGICAL EVALUATION
FOR
CHEVRON/FINA OIL AND GAS EXPLORATION EIS

I. INTRODUCTION

An environmental impact statement has been prepared which describes and evaluates the management alternatives for the exploration drilling of two oil/gas wells. The drilling projects have been proposed by two companies, Chevron USA and Fina Oil and Chemical company. The proposed Chevron wellsite is in the Goat Mountain area and the proposed Fina site is in the area of the headwaters of Hall Creek. Both proposed sites are located in the RM-1 Unit of the Lewis and Clark National Forest. The RM-1 Unit is locally referred to as the Badger-Two Medicine area. Both well sites are located in the Badger-Two Medicine Bear Management Unit (BADTW BMU) on the Rocky Mountain Division of the Lewis and Clark National Forest (Map 1.2 in EIS).

The purpose of this biological evaluation is to review the possible effects of the proposed action on endangered and threatened species and their habitats in order to determine whether or not a "may affect" situation exists (a temporary reduction in habitat effectiveness or modification of home range). This evaluation considers all the existing and on-going activities within the BMU; roads, trails, campgrounds etc. There are no other major construction projects or timber sales that are planned or will take place in the near future in the BMU. The monument at Summit near Marias Pass on US Highway 2 will be moved during the summer of 1989 and an expansion of the existing parking lot will take place. This action is not expected to increase the recreation use that is presently taking place in that area but will help alleviate the traffic and parking problems that have occurred at the Summit area in the past few years.

The US Fish and Wildlife Service has been contacted to determine the species that need to be evaluated. These species are grizzly bear, gray wolf, bald eagle, and peregrine falcon. No endangered or threatened plants are known to occur in the area and there are no endangered or threatened plant or animal species that occur in the area that are proposed for listing.

The Rocky Mountain Front Cumulative Effects Model (Forest Service et.al., 1987), research data gathered on the Rocky Mountain Front, and seasonal ranges are the principal tools used to evaluate the effects of the proposed drilling projects on the grizzly bear and its habitat. The cumulative effects model is presently the only tool that is available that can examine all activities that are taking place in a bear management unit (BMU) and make some determination of the effects on grizzly bear habitat. The cumulative effects model utilizes the existing condition as a basis for comparison for individual alternatives and gives outputs that indicate how an individual alternative may change the existing condition. Thus, what it actually measures is the relative differences between alternatives from the existing condition. The cumulative effects model can also be used to determine the amount of habitat units lost by a proposed activity. This information can guide the user in determining mitigation and measure the effects of mitigation in respect to the proposed activity.

A process for measuring biological thresholds for BMUs against impacts from activities has not been developed, as yet. Therefore, using the model in any way other than a comparative analysis is outside the applicability of the model. The value of the model at this time is to compare alternatives to each other and to determine if the effects of an activity can be offset by restricting other activities for the purpose of maintaining the habitat at its present level or improving it.

II. AFFECTED ENVIRONMENT

The grizzly bear and bald eagle are known residents of the Badger-Two Medicine BMU. To date, the peregrine falcon appears to be a migrant through the area. There has not been any evidence of a wolf pack using the area, however solitary animals or their sign have been observed.

Bald Eagle (*Haliaeetus leucocephalus*)

Bald eagles, although not known to winter in the BMU, migrate through the area in spring and fall. Migrants may be sighted near streams and rivers, ungulate concentration areas, and ground squirrel colonies.

Two bald eagle nest sites are known to be located on the adjacent Blackfeet Reservation outside of the project or study area; one in the East Glacier Park area, and the other along the South Fork Two Medicine River. The timber stands along the Two Medicine River on the National Forest System lands could be potential nesting sites for bald eagles, especially in two cottonwood stands close to Sawmill Flats. However, in trips completed by forest service personnel during the past summers up and down the South Fork Two Medicine River, there were no eagle sightings noted. There are no known communal roosts within the project area.

Peregrine Falcon (*Falco peregrinus*)

Scattered observations along the Rocky Mountain Front indicate use, at least by migrants, during spring and fall. Potholes, lakes, and riparian zones provide suitable habitat for prey species for the peregrine falcon. However, no active or historic nest sites (eyries) are known for peregrine falcons in the project area and no essential habitat listed by the Fish and Wildlife Service for the recovery of the peregrine is in the Badger-Two Medicine BMU.

Two sites in the area were thought to have potential for sustaining eyries; the cliffs that overlook Kiyo Crag Lake and the limestone cliffs that lie at the head waters of Whiterock Creek. However, after a closer examination for the birds and quality of habitat, these sites are no longer valued as nesting sites.

Gray Wolf (*Canis lupus*)

Most of the the Rocky Mountain Ranger District has been identified as suitable - occupied habitat. No denning or rendezvous sites have been identified on the National Forest lands within the BMU. There is no evidence of pack activity, but it appears there are singular wolves passing through the BMU while dispersing from a larger population in Canada or the new packs that have established themselves in the North Fork of the Flathead River in Glacier National Park. A limiting factor in any build up of a wolf pack in the Badger-Two Medicine BMU may be the low ungulate wintering populations that would ordinarily serve as a prey base. Only a small number of moose (10-30) and elk (130-150) make up the ungulate species (see Chapter IV.1.G and IV.2.G for more information on ungulates.).

Mattsen and Ream (1978) documented evidence of wolf presence nearly a decade ago. At that time, populations for the Rocky Mountain Front were estimated at five to eight wolves. Wolf sightings in 1985, 1986, and 1987 compiled by the Fish and Wildlife Service (1988) reflect the presence of wolves several miles north of the BMU on the east side of Glacier National Park and the adjacent Blackfeet Reservation (Milk River, Cutbank Creek and Ridge, and Cutbank Ranger Station). In October of 1985, wolf sightings near False Summit and Rising Wolf Mountain in Glacier Park were also recorded.

Mike Fairchild, participant in the Wolf Ecology Project (Mattsen and Ream, 1978), stated that a track and howling were documented in October of 1985 on the west side of Goat Mountain (personal communication, August 19, 1986). Researchers from Bob Ream's Wolf Ecology Project completed limited surveys in the Badger-Two Medicine area in the winter of 1986. No wolf sign was found, possibly because of the poor weather conditions encountered. In October of 1986, another survey was completed by the Wolf Ecology Project in which a total of 78 miles of roads and trails were hiked. No wolf presence was recorded.

During the summer of 1986, ECON INC of Helena, Montana spent 160 person-days in the Badger Two Medicine BMU mapping habitat for grizzly bear. No evidence of wolves was seen or collected by the field crews.

In 1987 a pack of seven animals took up residence on the Blackfeet Reservation to the northeast of the RM-1 unit. Six animals of this pack were controlled by the Fish and Wildlife Service and the Animal Damage Control Agency because of predation on domestic livestock.

Grizzly Bear (*Ursus arctos*)

The Forest Service land within the Badger-Two Medicine area has been designated as a Management Situation One, with the north end of the area adjacent to the private land as Management Situation Two, in accordance with the Interagency Rocky Mountain Front Wildlife Monitoring/Evaluation Program (1987), commonly referred to as the Rocky Mountain Front Guidelines. Management direction from the guidelines instructs land managers to maintain or improve grizzly bear habitat in Management Situation One, and to minimize grizzly-human conflict. Land use which can affect grizzlies and/or their habitat will be made compatible with grizzly needs or the use will be disallowed. Grizzly-human conflicts will be resolved in favor of the bear unless it its determined that the bear is a nuisance.

In addition to the guidelines presented in the Rocky Mountain Front Guidelines, considerable grizzly bear research has been done during the period from 1960-1986 (Aune et al., 1985). The most recent research began in 1981 under the direction of Keith Aune (Montana Department of Fish, Wildlife, and Parks). Because of this research, additional information has been gathered on home ranges (area of yearlong use) and habitat (seasonal ranges, i.e. spring, summer, denning) for the grizzly bear. From this information, Bear Management Units (BMU's) were established for the Rocky Mountain Front. These units are based on an area that contains the habitat requirements necessary to support a subpopulation of female grizzly bears. Radio locations were used to establish use patterns at various areas by bears as well as to verify the location of the bear unit boundaries. The proposed project lies within the Badger-Two Medicine BMU.

Home range information indicates that the bears using the Badger-Two Medicine BMU have smaller home ranges than the bears south of Birch Creek. The Badger-Two Medicine BMU home ranges are comparable to the home ranges utilized by bears in the North and South Forks of the Flathead River. Home ranges tend to be smaller in areas where food and cover is better. Based on the preliminary data presented by Aune et al (1986), it appears that the Badger-Two Medicine BMU is of higher quality habitat than the areas south of Birch Creek.

Recent studies have determined that current bear densities in the Badger-Two Medicine BMU are one grizzly per 16-20 square miles. Extrapolating this density to the size of the BMU indicates that approximately 16-20 grizzlies occupy the BMU (Dood et al, 1986). This appears to be comparable to some of the grizzly bear densities that have been established for other BMU's of the Northern Continental Divide Ecosystem (NCDE) but it is still less than similar BMU's to the west and in Glacier National Park that have similar habitats. K. Aune (personal communication, 1986) believes the grizzly bear population is still below the potential carrying capacity of the BMU.

Two critical time periods of the year for the bear are spring (when they emerge from their dens) and fall (when they return to denning areas). Aune et al. (1986) documented that the spring use season for the Badger-Two Medicine BMU begins after den emergence, which occurs throughout the month of April.

Movement from the den sites to the lower spring ranges occur from late April to early May. Aune also states that data from 1980-85 indicates that all spring range is used during the breeding season and should be considered breeding areas. He notes that in the 1985 field season, breeding pairs were seen in the Elk Calf Mountain and the Two Medicine Ridge-Hyde Creek areas. The Interagency Rocky Mountain Front Wildlife Monitoring/Evaluation Program (Interagency Guidelines, 1987) recognizes the importance of these seasonal ranges and recommends that human activities be avoided on spring ranges during the time period from April 1 - June 30.

The denning period begins about October 15. It has been recommended that human activities be restricted from October 15 - April 15 (Interagency Guidelines, 1987) in key denning habitat. As reported by Aune (1987), six den sites have been located in the BMU. Three of these have been in the Benson Creek drainage above 6100 feet on northwest or southeast aspects in Alpine fir/Menziesii or Alpine fir, Engelmann spruce/whortleberry habitat types. One was in Challenge Creek close to the Continental Divide, one at Emerald Lake and one on the northwest side of Goat Mountain in a natural cavity away from the drill site.

The Badger-Two Medicine BMU is accessed by a network of roads on the Blackfeet Indian Reservation portion of BMU and a combination of roads, trails, and old seismic roads on the National Forest lands (See Chapter III.D). Presently, all National Forest lands in the BMU are managed under area, road and/or trail closures. There are designated routes in the areas that do allow for motorized use. These travel restrictions are all part of the 1988 Lewis and Clark National Forest travel plan which was produced with input from the Blackfeet Tribe, Montana Department Fish, Wildlife and Parks, and the general public.

In the past, references have been made to the illegal taking of grizzly bears because of the existing access into the BMU (Schallenberger, 1974). In the Montana Departmental EIS (Dood, et al, 1986), mortality in the Northern Continental Divide Ecosystem (NCDE) is addressed at length. Of the 71 radio-collared bears that have been killed in the NCDE over a ten year period, six of these were verified unreported deaths (i.e., the radio collars were found with no trace of the bear), and of these six, five were near roads.

Aune (1987) has documented the loss of bears in the BMU during the period 1977-86. During that time, seven bears have been lost from the BMU; one shot during a second relocation attempt of this bear to British Columbia, one by hunting, one during research action, and four by illegal killing.

Along with the research that has taken place in the BMU, the vegetation has been mapped in accordance to the Forest Service regional guidance for vegetation mapping. This was done in order to facilitate the use of the cumulative effects model for the grizzly bear.

In order to meet the IBLA remand of the original Fina application, a cooperative law enforcement agreement has been drafted and signed by the US Fish and Wildlife Service, Montana Department of Fish, Wildlife and Parks, Bureau of Indian Affairs, Bureau of Land Management, Blackfeet Tribe and the Forest Service. This agreement defines all the agencies' roles in law enforcement of the Badger-Two Medicine area if the Fina well is drilled.

The Forest Service also has a cooperative law enforcement agreement with the Montana Department of Fish, Wildlife and Parks and the County Sheriffs' offices for yearlong coop patrols of the BADTW BMU. Although there is not a written agreement, the US Fish and Wildlife Service takes part in these patrols. To date, citations have been issued but the county attorneys have not prosecuted any of the cases. Illegal camps have been removed as well as bear snares.

The land base in the Badger-Two Medicine BMU is just one of the BMU's that make up the Northern Continental Divide Ecosystem (NDCE). All BMU's serve as a land base for the free interchange of grizzly bears within the ecosystem. Research involving radio-collared bears indicates that migration between

Glacier National Park, the Bob Marshall Wilderness complex, the remainder of the BMU's on the Rocky Mountain Front, and the Badger-Two Medicine BMU, does presently occur.

III. ALTERNATIVES

Alternatives Not Considered in Detail

There were 15 alternatives considered for the proposed Chevron project. After some initial screening, 5 of these were eliminated from further detail study. For the proposed Fina project, there were 12 alternatives identified and 5 of these were eliminated from further study. Because of the number of alternatives, there was a need for additional screening of the alternatives. Refer to Chapter II in the EIS for more information on the alternative selection process. The alternatives that will be discussed in the biological evaluation will be confined to the final alternatives that the ID team believe are the most reasonable from the standpoint of all issues being considered in the EIS (see Map 2.8 in the EIS).

Alternatives Considered in Detail for the Biological Evaluation

1. Chevron Alternatives

Alternative 2 - Whiterock Pass

Roaded access would be via Forest Service Road 9128 to Palookaville, with reconstruction and construction to the well site via Whiterock Pass and the North Fork of Badger Creek.

Alternative 6B - South Fork of Two Medicine Westside

Roaded access would be from US Highway 2, beginning at the present Forest Service trailhead in Section 29 and extending up the South Fork of the Two Medicine River on the west side of the drainage and up the North Fork of Badger Creek to the well site.

Alternative 7B - South Fork of Two Medicine Eastside

Roaded access would be from US Highway 2, beginning at the present Forest Service trailhead in Section 29 and extending up the South Fork of the Two Medicine River on the east side of the drainage and up the North Fork of Badger Creek to the well site.

Alternative 9 - Helicopter Access from Palookaville via Whiterock Pass

Access to the well site would be via helicopter from a staging area in the vicinity of Palookaville, and over Whiterock Pass.

Alternative 12 - No Action

This alternative would deny Chevron permission to drill the well at Goat Mountain.

2. Fina Alternatives

Alternative A2 - False Summit

Roaded access would be from US Highway 2 in the vicinity of False Summit and would procedd easterly and cross the South Fork of the Two Medicine River. The route would then proceed soutwest and then southeast to the well site.

Alternative B2 - Trailhead Section 29

Roaded access to the Fina well site would begin at the present Forest Service trailhead in Section 29 just off US Highway 2, cross the South Fork of the Two Medicine River near Sawmill Flats and then traverse northeast to the wellsite.

Alternative D1 - Deep Creek

Roaded access to the well site would be from the northeast along Deep Creek and Forest Service Trail #180. The route would then traverse along the northeast side of Two Medicine Ridge to the well site.

Alternative F9 - Helicopter Access from Palookaville

Access to the well site would be from a landing zone near Palookaville, then west to the well site.

Alternative E - No Action

Under this alternative, Fina's application to drill would be denied.

IV. EFFECTS OF IMPLEMENTATION

The effects of implementation will be discussed for the individual projects and then the interrelated effects if the two projects were to take place concurrently. Two scenarios will be discussed for each project and the combined projects: 1) dry hole, in which one to two wells are drilled as proposed and then reclaimed because of a lack of hydrocarbons, and 2) production scenario of a one to three well field.

1. Bald Eagle and Perigrine Falcon

Dry Hole and Production Scenarios

All alternatives for both projects will have very little effect on existing or potential habitat for either species. The only potential effect would be that of the encroachment on the riparian habitat in the vicinity of Sawmill Flats along the South Fork of the Two Medicine River. However, there are no known eagle nest sites or communal roost sites along this portion of the river.

There will be no known falcon eyries, historic or present, affected by any of the alternatives that are being considered.

2. Gray Wolf

Dry Hole Scenario

Implementation of either or both of the no action alternatives would be a continuation of the present activities without superimposing any additional oil and gas exploration activities.

Selection of any of the Chevron or Fina Alternatives will not impact any habitat components such as den sites or rendezvous sites since none are known to exist in the Badger-Two Medicine BMU and there are no known wolf packs. The potential for direct effects in the form of mortality to the wolf and its prey species is much greater. The wolf prey base that exists in the area are elk, moose, deer, small game and beaver.

Implementation of any of the Chevron alternatives would have minimal impacts to the wolf. Alternatives 6B and 7B will have the potential to cause an impact to their moose prey base because these routes pass through the winter range along the South Fork Two Medicine River see (Fig 4A.1-6). The impact would occur in the form of some displacement and the potential of actual loss of moose due to vehicle/animal collision, and illegal taking. These impacts would be minor and short term. The illegal take of moose can be mitigated by access restrictions and the requirement of no firearms in company vehicles. Some of the impacts could be lessened by timing restrictions, however, the windows that have been identified for these routes would operate during the winter range period. A three to five month window for Chevron would require at least three to four seasons to complete the entire project, which does not facilitate getting in and completing the project in the shortest time possible. However, because of the low population of moose in the area, the short duration of the project, and the lack of a wolf pack in the area, the potential to impact the wolf is very minimal.

Implementation of either alternatives 2 or 9 would result in little if any impacts to the prey base and therefore would result in minimal impacts to the wolf.

Implementation of all Fina alternatives with the exception of alternative D1 would have minimal impacts on any of the prey species for the wolf. Even if yearlong operation occurred, very little of the key winter range for elk and moose would be disturbed (see Fig 4B.1-4). With the use of timing restrictions and road closures, the minimal impacts could be reduced to almost zero.

Implementation of alternative D1 has the potential to affect the prey base, and thus affect the wolf. However, because there are no wolf packs in the area at the present time and the impact from the exploration phase would be short term under this scenario, there would be minimal impacts on the wolf. This alternative would have minimal impacts on the wolf if a timing window was used that restricted drilling outside the winter range season.

Single Well or A Field Production

The basic impacts that have been discussed under the exploration phase would carry forth to the production scenario. However, instead of the impacts for two to three operating periods, they now have a longer duration and have the potential to impact the wolf to a greater degree depending on which access alternative is selected and the location of the production facilities. If a field (three wells) is developed as defined in the Oil and Gas Activity Analysis of the RM-1 Geographic Unit Report (Appendix L) impacts from all three wells would be similar to what has been described for the exploration well. The major difference is that it would take five to six years to develop the field instead of the two to three years it would take to drill the exploratory well.

a. Chevron Alternatives

One possible production corridor that may be considered is over Whiterock Pass. This production corridor would result in minimal to no impacts to the wolf. Even though this route passes through elk and moose winter range in the vicinity of Badger Cabin, only a minor amount of winter range is affected. The snow depths in this area make the winter range marginal so the winter concentration of the animals is further down the Badger Creek drainage. Also, telemetry data for elk shows little to no use by wintering animals along this corridor. The main elk winter range lies to the North in the Hall, Box & Hyde Creek area.

Selection of a production corridor that follows the South Fork Two Medicine River could have more impacts on the moose and thus on the wolf. If the production facilities were cited at Sawmill Flats, there would be a need to maintain the access road and the bridge open to vehicle traffic. This in turn would allow for more disturbance within moose winter range and in turn could affect the prey base of the wolf.

If the production facilities were cited at False Summit, a pipeline would proceed down the South Fork and tie into the production facilities, thus requiring no facilities in the winter range and thereby reducing the potential for any impact to the prey base and the wolf.

b. Fina Alternatives

One possible location for a production facility could be at False Summit. The choice of this site for production could be a result of chosing alternative A2 as the preferred alternative. Any pipeline would probably also follow the alternative A2 access route. There would be minimal impacts to the prey species of the wolf because the access road would not be crossing any of the key winter ranges, it would be on the periphery. If all facilities were located at False Summit there would be much less need for wellhead visitation. The bridge required to cross the South Fork Two Medicine River and the access road would be managed for public travel in accordance with the Forest Travel Plan. Under these conditions of production from the Fina well site, minimal impacts would result to the wolf.

If alternative B2 is chosen as the preferred alternative, a location option for the production facilities could be at Sawmill Flats. However, there would be the potential for more impacts to the prey base, the moose, than if A2 is selected. Sawmill Flats lies in the bottom of the South Fork Two Medicine River and is on the south side of the river requiring a bridge be open to yearlong travel. This facility would be within moose winter range and would have traffic to and from it daily or at least weekly. This could result in mortality to moose and maybe the wolf itself because of the ease of access provided by the road and bridge.

If alternative D1 is chosen as the preferred alternative, production facilities could be located on the Blackfeet Reservation east of Dog Gun Lake. Some impacts to the elk and moose prey base could be anticipated. Alternative D1 passes through the Hyde, Box, and Hall Creek winter range unit. It would also improve access up Deep Creek and into the head of Metler Coulee which is a key area for the elk to winter if snow depths become very deep. This is also where most of the illegal taking of elk occurs in the late winter and early spring. Therefore, by improving access into this area and allowing some visitation to the well site, it is anticipated that there would be a greater impact to the prey base and to the wolf.

3. Grizzly Bear

Effects on grizzly bears as a result of the proposed activity may be direct, indirect, cumulative, short term or long term. The direct impacts to grizzly bear habitat (actual conversion of habitat from existing to reclaimed) will be minimal and will not be the focus of discussion. The major impacts to grizzly bear habitat will be short term in nature from the stand point of displacement from preferred areas, potential increased mortality and the potential of introduced attractants. There is the potential of long term impacts if either or both of the wells are producers and a three-well field is developed.

The Rocky Mountain Front Cumulative Effects Model (Forest Service et. al., 1987), research data, and the acres of seasonal ranges affected by the proposals will be the main tools used to evaluate the impacts of the proposed activity on grizzly bear habitat.

Dry Hole Scenario

The no action alternatives would result in no impacts to grizzly bear habitat from gas and oil exploration.

a. Chevron Alternatives

The amount of disturbed acres of spring range from any of the Chevron alternatives would be very similar. Alternative 2 disturbs the least amount of spring range of any of the roaded alternatives (see Fig 4A.3-4). Alternative 9 disturbs the most acres, however, it will be disturbing spring range that is of lesser quality as demonstrated by actual use data collected by Aune (1987) via telemetry, and the seasonal habitat values for the alternative that were generated by the cumulative effects model. One item that is unique to alternative 2 is that the first part of the road from BIA 2 to the Forest Boundary will not be under the control of the Forest Service, therefore it is possible that construction would take place as soon as weather and ground conditions are allowable. Even though this section of the road is within grizzly bear spring range, use of this range by the bear is little to nonexistent as demonstrated by the previously mentioned radio telemetry work by Aune (1987).

Grizzly bear denning habitat is also affected by all Chevron alternatives with the least amount being disturbed by alternative 6B and the most being disturbed by alternative 9.

Radio telemetry data from two female grizzly bears by Aune (1987) has defined home ranges of the two bears in the headwaters of South Fork Two Medicine River, North Badger Creek, and Lee Creek area. The access route from Badger Cabin area to the well site will be on the periphery of these home ranges but will add a disturbance to the home range that does not exist at this time. One female has a small home range and spends its time in the North and South Forks of Badger Creek, while the other female uses the area from North Badger to Hall Creek.

Aune (1984) found that grizzlies were not displaced from their seasonal ranges by drilling activities. However, grizzlies did appear to be displaced from the immediate area of the road and drill site. Evidence from past studies by Aune (1984) reveals that reoccupancy of these sites take place after the human activity ceases. Other research studies also confirm the temporary displacement along road corridors (National Wildlife Federation, 1987).

A cumulative effects analysis was completed for all project alternatives. The results of this analysis are displayed in Table 4.1-2. Habitat effectiveness is expressed as the percent of reduction in relation to the habitat potential. A comparison of the model outputs by alternatives reveals that there are measurable differences in impacts to grizzly bear habitat. The figures displayed are for a yearlong drilling operation and an 8.5 month window in order to display the benefits of imposing drilling windows on the operation (Table 4.3-4).

In comparing the habitat effectiveness figures, it is apparent that helicopter access has the least impact on the habitat and the lowest mortality risk index. Of the roaded alternatives, alternative 2 has the least impact to the habitat as well as the least impact on the bear from the mortality risk index. The impacts due to an access in the South Fork Two Medicine River corridor are very similar, whether on the east or west side of the river.

In order to compare habitat quality for each alternative, a seasonal habitat value rating for the alternatives zone-of-influence was calculated (SHV in ZI) (See Table 4.1). In examining the model outputs in Table 4.3, alternative 2 has the largest zone-of-influence, but the quality of the habitat as demonstrated by the seasonal habitat value for the zone of influence is the lowest. This results in the lowest reduction of habitat effectiveness of the roaded alternatives. The seasonal habitat values for alternatives 6B and 7B are the highest values of any of the alternatives. The acres within the zones-of-influence differ only by 1000 acres and seasonal habitat values values are very similar.

Because of the amount of high quality habitat within the zone of influence, a higher reduction in habitat effectiveness results even though the zone of influence acres are less than alternative 2.

The Chevron well site is located in a timber stand of open spruce/fir-whitebark pine. Within the zone of influence of the well site are various vegetation types. These types consists of talus scree, rock, vegetated talus scree, alpine meadows, krumholtz, open and closed spruce/fir stands, grasslands, shrubfields, closed lodgepole, and mosaics of the before mentioned vegetation types. These all combine together to produce seasonal habitat values for the zone of influence of the well site of: .422 for spring, .527 for summer, and .577 for fall. The well site location is held constant throughout all alternatives.

Chevron has requested a crew camp at the drilling site. The effect of a crew camp in grizzly bear habitat is one of introducing attractants into an area where they do not presently exist in any abundance. Because of cooking odors and garbage accumulation there is a stronge possiblity of increasing the human/bear conflict and the potential of having to take corrective measures in either removing the attractant or the bear. The direction in the Interagency Rocky Mountain Front Guidelines (1987) is that in the event of a grizzly-human conflict, the conflict will be resolved in favor of the bear unless the bear is determined a nuisance. Because of this direction, if grizzlies are attracted to the camp site, the company is at risk of an operational shutdown if conflict does arise. In studies conducted on impacts to grizzly bears in relation to camps (National Wildlife Federation, 1987), it has been found that camps increase the likelihood of human-grizzly conflict. This results in increased mortalilty to the bear either by killing or relocation of the animal.

Research also suggests that most impacts to the grizzly bear come from the increase in legal and illegal mortality due to the presence of roads (National Wildlife Federation, 1987). Dood et al.(1986) found that 32% of all hunting mortality and 48% of all non-hunting mortality occurred within 1.0 mile of a road. These results indicate that the risk of grizzly bear mortality will increase if access roads do not have public travel restrictions. Firearm restrictions for company personnel can also assist in prevention of grizzly bear mortality.

b. Fina Alternatives

Seasonal ranges disturbed by the alternatives for Fina include from 3416 acres with alternative A2 to 7007 acres for alternative F9 of spring range, and from 100 acres to 260 acres of denning habitat. The amount of denning habitat disturbed is insignificant when compared to the amount that is available for use. For a summary of acres of seasonal ranges affected by alternative for Fina see Tables IVB.5-6.

For a discussion on avoidance of roads and drill pads by grizzly bears the reader is referred to section IV.3b - Chevron Alternatives.

For habitat effectiveness, a comparison of the outputs of the model to the alternatives reveals that all alternatives have about the same impact to grizzly bear habitat during the exploration phase of the project. The figures displayed in the table are for a yearlong drilling window and a 5-month drilling window in order to display the benefits of imposing timing windows on the operation.

The well site for Fina is located in a timber stand of closed lodgepole. The zone of influence however, takes in a variety of vegetation types, such as: grasslands, spruce/fir stands, riparian area, shrubfields, aspen stands, talus scree, and mosaics of some of the before mentioned vegetation types. These all combine to create a seasonal habitat value for the well site, which is constant throughout all alternatives, of: .546 in the spring, .621 in the summer, and .674 in the fall.

A comparison of the seasonal habitat value for the zone of influence indicates that alternative A2 has the highest seasonal habitat value of all the alternatives, thus relating that this impacts a higher quality of habitat than other alternatives. However, because it has the smallest zone-of-influence the reduction in habitat effectiveness is the lowest. D1 has the lowest habitat quality ratings but has the largest reduction in habitat effectiveness. This is because of the large zone-of-influence that is created because of the miles of road associated with this alternative.

Alternatives A2 and B2 have very similar impacts and model outputs and would result in the least impact to grizzly bear habitat. Both would result in a bridge crossing of the South Fork Two Medicine River. If the bridge is left in place there would be a long term change in the recreational use pattern in the area. Presently there is very little use within the area during the spring months because of high water and the problems associated with crossing the river. If a bridge is constructed and left in place then this natural barrier will be breeched and an increase of use of the area by recreationists could be anticipated.

Fina has also suggested a crew camp at the well site in their surface use plan. The effects of a crew camp in grizzly bear habitat are discussed above under the Chevron Alternatives.

c. Combination of Both Wells

The impacts to wildlife have been assessed for each well being drilled separately. Combinations of different alternatives have also been analyzed in the EIS. Alternatives that combine project exploration by Chevron from Palookaville either by ground or air, with any of the Fina alternatives appear to be the combinations that are least impacting to the grizzly bear. The impacts that are discussed for each project individually, apply to the combined projects. There are no overlapping zones-of-influence from the two projects, thus bears and other big game animals can be displaced from the areas of one activity and not encounter the other activity.

The CEM was used to examine the habitat effectiveness and mortality risk if the wells were allowed to proceed together. A yearlong window was used to show the maximum reduction in habitat effectiveness. Table 4.5 displays these outputs. Of the roaded *alternative combinations 2/A2* reduced the habitat effectiveness the least in all seasons.

Production of Exploration Wells or Three Well Field

a. Chevron Alternatives

A siting facility report (Appendix L) was completed for the EIS in which corridors were identified that could have pipelines and processing plants located within them. The areas for production facilities for Chevron could be on private lands in the False Summit area, at Sawmill Flats on Forest Service lands, in an open meadow in the vicinity of Badger Cabin, and on the Blackfeet Reservation lands east of Palookaville.

Selection of a production corridor over Whiterock Pass would result in about 5600 acres or 12.4% of the grizzly bear spring range being within the zone-of-influence of the road. It is anticipated that one lift station along the road about one-third of the distance up the slope from Badger cabin would be needed. This station would pump the gas and condensate to a production facility in the vicinity of Palookaville. The lift station would be a building about 20' x 30' and could have a gas powered pump or an electric pump in it. It is anticipated that visitation to the station and well site would be weekly and perhaps as infrequent as monthly once the well has established a record of production. Visitation could either be done via the Whiterock road or by trail up the South Fork Two Medicine River.

Selection of a production corridor that follows the South Fork Two Medicine River would have about 7000 acres or 15.7% of grizzly bear spring range within the zone-of-influence of the road corridor. The acres that are within this corridor are of high value to the bear as demonstrated by the use data gathered by Aune (1987). If one examines the total Seasonal Habitat value that the model has produced for the the South Fork Two Medicine River corridor (Hyde Creek and Summit) and the seasonal habitat values for zone-of-influence along the production corridor, they are almost the same. This coupled with Aune's telemetry data demonstrates that this is an area that is valuable for the grizzly bear. Production of the well by this route would require a pipeline buried in the road corridor and it would flow by gravity pressure either to a production facility at Sawmill Flats or at False Summit. If the production facilities were cited at Sawmill Flats there would be a need to maintain the access road and the bridge open to vehicle traffic. This in turn would allow for more disturbance within grizzly bear spring range than is taking place at the present time. If the production facilities were cited at False Summit, a pipeline would proceed down the South Fork and tie into the production facilities which would place production facilities at the very periphery of the spring range and reduce the impact to the grizzly bear habitat.

Table 4.7 displays the model outputs of two production scenarioes for the Chevron well site. The alternative route of 7B was selected because it involves the largest amount of acres being impacted by a road. This is also the most direct route to the Sawmill Flats area as well as the False Summit area for location of production facilities.

As with the exploration alternatives, a production route over Whiterock Pass reduced the habitat effectiveness less than following the South Fork Two Medicine River north to US Highway 2. The habitat quality as demonstrated by the seasonal habitat value for the zone of influence (Table 4.7) reveals that the South Fork Two Medicine River production corridor is in higher quality habitat than the Whiterock Corridor. It is this difference in quality that makes the difference in the habitat effectiveness ratings.

Production of the hypothetical three-well field would have impacts similar to the one-well production. The location of the other two wells would probably be within the vicinity of the proposed well and would utilize most of the access provided for the initial proposed well. The major impacts would be that development of the field would be for a five to six year period instead of two to three years for one well.

b. Fina Alternatives

A siting facility report (Appendix L) was completed for this EIS in which corridors were identified that could facilitate pipelines and processing plants located within them. The three areas that were identified for production facilities for Fina include the private lands in the False Summit area, Sawmill Flats on Forest Service lands, and Blackfeet Reservation lands east of Dog Gun Lake or Palookaville.

If Alternative A2 were selected for access, production facilities would likely be located at False Summit. There would be about 3400 acres or 7.6% of the grizzly bear spring range within the zone of influence of the road to the well. This would provide an access route to the well that is more along the periphery of the elk winter range and the grizzly bear spring range. It is also adjacent to the private lands and their activities. Production of the well would require leaving a bridge across the South Fork Two Medicine river intact to facilitate visitation to the well head and pipeline corridor. This road and bridge would be regulated for motorized use by the public in accordance to the Forest Travel Plan (Forest Service, 1988). Administrative traffic would be permitted for the inspections necessary for the well head. Because of the presence of the bridge across the river on a legal public access, there could be an increase in nonmotorized use of the area than is presently not taking place because of the problem of crossing the river at high water.

If production facilities were to be located at Sawmill Flats with alternative B2, there would be about 3500 acres or 7.9% of the grizzly bear spring range within the zone-of-influence of the road to the well. Sawmill Flats lies in the bottom of the South Fork Two Medicine River and is on the south side of the river requiring a bridge be open to travel yearlong. This production facility would have traffic to and from it daily or at least weekly. This would be an additional disturbance that is not present at the current time.

If alternative D1 was selected for access to the well site, production facilities could be located on the Blackfeet Reservation east of Dog Gun Lake. About 6400 acres or 14.2% of the grizzly bear spring range would be within the zone-of-influence of the road. These same acres are involved with the Hyde, Box, and Hall Creek elk and moose winter range unit. It would also improve access up Deep Creek and into the head of Metler Coulee which is a key area for the elk to winter if the snow depths become very deep. This is also where the most of the illegal taking of elk takes place in the late winter and early spring. Therefore, by improving access into this area and allowing some visitation to the well site it is anticipated that there would be a greater impact to the wintering elk and moose as well as additional disturbance to the grizzly bear spring range that is not currently taking place.

Table 4.6 displays the results of the model for production of the Fina well site. All roads for production have very similar impacts according to the model outputs. Alternative A2 does impact higher quality habitat, than B2 or D1. Alternative D1 impacts lesser quality habitat but has the largest zone-of-influence. However, it reduces the habitat effectiveness the least.

Production of the hypothetical three-well field would have impacts similar to the one well field. The location of the other two wells would be either to the north or west of the proposed well and would require no more than an extra mile of road construction. The major impacts would be that development of the field would be for a five to six-year period versus the estimated two to three years it would take to bring one well into production.

c. Combination of Both Wells

If both wells are producers, there are two possiblities for production. The first possibility is separate production facilities for each well and separate access routes as described for each well. The second possiblity would be to produce both wells from one production facility.

In the siting report, a map shows the areas in which major production facilities could be located. The map only shows areas in the RM-1 Unit (Forest Service lands). There are areas on the Blackfeet Reservation and private lands as mentioned above that could also facilitate construction of production facilities and a pipeline. If the decision is made to produce the wells at separate facilities, the impacts that have been discussed under each well will still hold true. If, however, a decision is made to co-locate production facilities, a different set of impacts could take place. The location of the production facilities would probably be at one of two locations: On private land in the False Summit area or on the Blackfeet Reservation east of Palookaville.

The cumulative effects model outputs show that the production corridor down the South Fork Two Medicine River corridor to False Summit would be more impacting than going over Whiterock Pass for Chevron (see Table 4.7). Thus, the South Fork Two Medicine corridor was not selected as an alternative route for combination production of both wells. Therefore, the analysis that addresses the production combinations only considered alternatives 2 and A2 with separate production facilities and alternatives 2 and D1 with one production facility. The model outputs for these two alternative combinations are very close in effects (Table 4.9). The 2-A2 alternative combination is still the best in terms of the least reduction in habitat effectiveness and mortality risk. However, with some mitigation and additional trail closures, the 2-D1 alternative combination could have to same overall affect.

V. PREFERRED ALTERNATIVE AND MITGATION NEEDED TO REDUCE AFFECTS

Chevron Alternative

The preferred alternative for the exploration of the Chevron well site is *alternative 2*. This alternative route passes through the lowest quality habitat for the bear and has the lowest reduction in habitat effectiveness of the roaded alternatives.

Fina Alternative

The preferred alternative for exploration of the Fina well site is *alternative A2*. Even though this alternative has a higher quality habitat for spring and fall, it provides for the lowest reduction in habitat effectiveness of the roaded alternatives.

Combined Alternative

Another alternative that was considered was to be able to allow the companies to drill on their prospects at the same time or in sequence. This alternative was analyzed and it appears possible to allow both projects to occur with the imposition of timing windows. (See Section IV.3 for analysis of alternative combinations.)

Mitigation Specific For Chevron

The cumulative effects model was utilized to analyze the relative impacts between two windows of operation; a yearlong window and an 8 1/2 month window. The 8 1/2 month window would be from July 15 to March 31. This window was also selected to minimize impacts to the Rocky Mountain Goat. Because alternative 2 is partiallly on the Blackfeet Reservation, it is conceivable that the window will only apply to the portion of the road that lies within the Forest Service boundary.

In order to minimize the impacts on grizzly bear spring range, especially in the area of Badger Cabin, and minimize impacts to the two female grizzlies that have established there home ranges in the head waters of the South Fork Two Medicine and North Badger Creek, it is recommended that the 8 1/2 month window for the exploration activities of the well be adhered too. There is an opportunity however, to allow road construction from Whiterock Pass to BIA 2 to take place outside of this window without causing major impacts to the grizzly bear. The exception to the window for this section of road is based on the lack of grizzly bear use in the spring, as previously mentioned, and the lack of any female bears having established a home range within this area.

Guideline 1a of the Interagency Guidelines (1987) will be followed if an 8 1/2 month window is required. Guideline 1d which is related to denning habitat will not be followed with an 8 1/2 month operating window. However, the relatively small amount of quality denning habitat in the Goat Mountain area that would be affected by the proposed Chevron project is not deemed as critical and to date, no dens have been located in the vicinity of the well site. The one den site that has been used on Goat Mountain is outside the zone-of-influence of the well and access road, thereby allowing for its continued use by bears.

During the life of the exploration drilling project it is recommended that a road guard be utilized to control traffic that is not associated with the project. This guard should be located at the top of Whiterock Pass after July 15 and at Palookaville after December 1. A road guard will facilitate in letting the public utilize the road as they do prior to the permitting of the project. This mitigation measure will be applied to restrict all unauthorized personnel from using the road with vehicles and thereby reduce the mortality risk to the bear as suggested in the cumulative effects model. Table 4.11 shows the value of restricting firearms along the access road and well site. The Mortality Risk Index is reduced by 62-67% when firearms are restricted from Whiterock Pass to the drill site.

The management direction of Management Situation One is to maintain or enhance habitat. To this end, it is recommended that motorized use (this does not include snowmobiles) on the following trails should be restricted during the window of operation for the Chevron project (See Map 2):

> Trail 103 from Badger Cabin to the Continental Divide,
> Trail 141 Lee Creek and Trail 142 Kipp Creek,
> Trail 144 should be open to foot and horseback travel only from the junction with Trail 103 to North Badger Creek and closed to *all travel* from where it crosses North Badger Creek to its junction with South Badger Creek.

Habitat that is being affected by the proposed well ranges from low elevation spring range to high elevation summer/fall range. By imposing these trail closures, motorized use is being removed from some of the same kind of seasonal ranges. Also, these areas are preferred areas by elk and goat as well as bear. These closures will also reduce motorized use in the home ranges of the two females using the North Fork Badger Creek area.

Table IV.12 compares the habitat effectiveness and habitat units with the mitigation of trail closures and without trail closures. By implementing the selected trail closures, the drilling of the well can take place and the habitat effectiveness can be maintained or improved over the existing situation.

It is recommended that if the well is a dry hole, the road will be obliterated and restored to the contour, as specified in Appendix K of the EIS. This recommendation applies from the well site to Badger Cabin with the remainder of the road to be managed as the present road is being managed under the Lewis and Clark National Forest Travel Plan (Forest Service, 1988).

If the well is a producer and a single well field or the projected three-well field is developed, then it is also recommended that any additional construction or activity take place in the 8 1/2-month timing window. However, it is recommended that a reduced window of operation be implemented in the event of heavy maintenance of the well or wells. The recommended reduced window of operation is a five-month window from July 1-November 30, except in the case of an emergency. The road will be managed for only allow administrative traffic outside the proposed travel plan restrictions. The wellhead should be remote monitored in order to reduce visitation. It is recommended that the production facilities be located off Forest Service lands. Once the transportation system is designed for the field, the Forest Service Trail system should be examined to best serve as access for the area and to mitigate for the road system that will have to be left in place for the life of the field. It is recommended that the company be required to make their visits to the well by the appropriate ATV vehicle whenever feasible, thereby being commensurate with the motorized use that is presently occurring in the area. It is anticipated that some or all of the trails closed for exploration would be the trails closed for production of the field.

Mitigation Specific For Fina

In comparing the seasonal habitat values for summer, alternative A2 has a lower value than does alternative B2 and it also reduces the habitat effectiveness less than alternative B2. If a five month window of operation from July 1-November 30 is implemented, impacts would be confined to non-critical seasons (summer-fall). Also the drilling would take place during one season when the seasonal habitat value is lower than that of alternative B2. Therefore to reduce disturbance to grizzly bear spring range, a five month window of July 1-November 30 is recommended for any road construction, for drilling of the well and any activity associated with the reclamation of the wellsite and road. It is anticipated that by using a five month window, it will take 2 years to complete the drilling of the well with an additional year or two for reclamation.

Guideline 1a of the Interagency Guidelines (1987) will be followed if a five-month window is required. Guideline 1d, however, will not be followed which deals with denning habitat. The small amount of denning habitat that would be affected by Fina is not deemed as critical and at this time, no dens have been located in the vicinity of the well site.

During the course of the drilling, it is recommended that a road guard be utilized to control traffic to that which is necessary for the drilling operation. This road guard should be located somewhere on the bench between the bridge across the South Fork Two Medicine River and US Highway 2. This mitigation measure is to restrict the public from motorized use on the road during the operational period so that that the mortality risk to the grizzly bear may be reduced as demonstrated in the Cumulative Effects model.

Table IV.11 shows a comparison of the mortality risk indices for the zone-of-influence for the access road and the well site with firearms allowed and firearms restricted. By imposing an arms restriction on the road and well site, a 60-75% reduction in the mortality risk index can be seen. When one looks at the entire Badger-Two Medicine BMU, the change is not as dramatic but there is a decrease in the mortality risk index when firearms are restricted on the proposed project (Table IV.10).

Management direction of management situation one is to maintain or enhance the habitat. To meet this direction it is recommended that motorized use be restricted during the windows of operation on the following trails (See Map 3.5 of the EIS):

Trail 140 in its entirety,
Trail 139 from its junction with Trail 172 to junction of Trail 118,
Trail 118 from the private property at Rising Wolf Ranch to the junction with Trail 139,
Trail 181 in its entirety.

By closing these trails, motorized use within the Box, Hyde, and Hall Creek drainages will be limited to only project and administrative vehicles. This will provide an area for animals to be displaced from the drilling activity without encountering other motorized activities. These trails will remain open to foot and horse travel.

Table 4.12 compares the habitat effectiveness and habitat units reduced with the mitigation of trail closure and without trail closure. By implementing the selected trail closures during the well drilling, habitat effectiveness can be maintained at or below the existing situation.

It is recommended that the road be obliterated and restored to the contour from the well site to the bridge crossing the South Fork Two Medicine River if the well is a dry hole. Reclamation options are specified in Appendix K. The portion of the road from the South Fork Two Medicine River to US Highway 2 will be managed to access a trailhead facility on the bench between the river and the highway. This will then be managed in accordance to the Forest Travel Plan. The bridge decking should also be removed to maintain the natural barrier of the river in the spring.

If the well is a producer and a single well field or the three well field is developed, then any additional construction, drilling or heavy maintenance will take place in the five month timing window. The bridge will be left in place, but controlled to allow only administrative traffic outside the proposed travel plan restrictions. The wellhead should be remotely monitored to reduce visitation. It is recommended that the production facilities be located off Forest Service Lands. A suggested area is adjacent to US Highway 2 in Sec 15, T30N, R13W. Once the access road system is designed, the Forest Service Trail system should also be examined to best serve as access for the area and to mitigate for the road system that will have to be left in place for the life of the field. It is anticipated that some or all of trails closed for exploration would also be closed for production to make up for reduced habitat units.

It is recommended that the company be required to make their visits to the well by the appropriate ATV vehicle when feasible, thereby being commensurate with the motorized use that is presently occurring in the area.

Mitigation for the Combined Wells

Mitigation that has already been stated for the individual wells would carry over to the combined alternatives. Table 4.13 compares the habitat effectiveness and mortality risk with exploration of the two wells taking place concurrently with and without mitigation applied. The mitigation measures applied are: trail closures as associated with each well, firearm restrictions, and drilling during the appropriate windows.

If a decision is made to produce both wells at one central location, the least impacting option would be to locate the facilities off Forest Service lands. A potential location for production facilities would be along US Highway 2 in the vicinity of False Summit. The access and pipeline corridor would be the road for alternative A2. A second potential location is east of Palookaville on the Blackfeet Indian Reservation. The pipeline route for the Fina field could follow the proposed alternative D1 route. However, instead of a road corridor this could be managed as a pipeline corridor associated with a trail for maintainence. Once this corridor is established, other trails could be closed to mitigate for a new trail in the area. The new trail would then be managed for public use like the rest of the trail system. The main access to all the well sites would be alternative A2.

Mitigation that is Common for Both Wells

1. Road and pad layout will be reviewed by a wildlife biologist to insure impacts to wildlife habitat are minimized, and that coordination measures are followed as close as possible. This applies to the selected alternatives for the construction phase of the project.

2. To minimize the effects to wildlife while on seasonal ranges, the following windows of operation will apply to all alternatives and through all phases of operation:

   Chevron Project--will operate on an 8 1/2-month window beginning July 15 and ending March 31.

   Fina Project--will operate on a five-month window beginning July 1 and ending November 30.

3. Establish helicopter flight patterns of not more than 1/2 mile in width between staging areas and drill site operations, unless flying conditions dictate deviations due to safety factors. This applies to all alternatives, especially the helicopter access, through all phases of the project.

4. Because helicopters produce a more pronounced behavioral reaction by big game and raptors than do fixed-wing aircraft, helicopters will maintain a minimum altitude of 600 feet (183 meters) above ground level when flying between staging areas and work areas. This applies to all alternatives through all phases.

5. Insert "dog-legs" or visual barriers on roads and pipelines built through dense vegetative cover areas to prevent straight corridors exceeding one-fourth (1/4) mile. This applies to all alternatives through all phases of the project.

6. Bus crews to and from drill sites to reduce activity levels on roads. Shift changes should be scheduled to avoid morning and evening wildlife feeding periods. This is normally one half hour after sunrise and one half hour before sunset. This applies to all alternatives through all phases of the project.

7. Prohibit dogs and firearms during work periods or in vehicles traveling to and from work locations. This applies to all alternatives for all phases of the project, and is in keeping with existing company policy.

8. Incinerate garbage daily or store in bear proof containers and remove to local landfill dumps daily. This applies to all alternatives and all phases of the project.

9. Require that study of the effects of project implementation be conducted, with the cost of this being supported by industry, Forest Service and MDFWP (See Chapter V-Mitigation and monitoring for goals of the monitoring project). The study would key to effects on grizzly bear, elk and mountain goat. This applies to all alternatives through all phases of the project.

10 In order to mitigate the impacts on the Rocky Mountain Goat, it is recommended that additional animals be transplanted from outside sources into the habitat that exists in the Goat Mountain-Running Owl area. This should only be imposed on the company if through the monitoring of the goat population that the proposed activity had a negative effect on the population. This applies to all alternatives.

11 As discussed in section IV.3a,b of this document, it is recommended that a crew camp not be allowed at the well site for either the Fina or Chevron wells. The Chevron well site could have a camp from December 1 to March 31 if the company so desires. A recommended site for a camp for the Chevron operation would be at the junction of the BIA 141 and BIA 2 roads. This area is located outside of any key vegetation components for grizzly bear and lies at the edge of the bear management unit. This mitigation measure will reduce the potential of a human/bear conflict from attractants at the well site. In addition, it would reduce the risk to the company of having to shut down their operation if a conflict arose.

VI. DETERMINATION OF EFFECT

Implementation of the "no action" alternatives for the two well sites will result in "no effect" on the listed endangered or threatened species or their habitats.

1. Eagle/Peregrine

Dry Hole and Production of One Well or 3 Well Field

Implementation of any of the preferred alternatives for Chevron or Fina would have "no effect" on the bald eagle or the peregrine falcon due to the low population densities, generally transient occupation of the affected area, and the lack of any nesting territories or communal roost sites within any of the zones of influence of the alternatives.

2. Gray Wolf

Dry Hole Scenario

The implementation of any of the Fina or Chevron preferred alternatives will have "no effect" on the wolf. This is based on the short term impacts of the dry hole scenario and the absence of a wolf pack in the area. Also the use of timing windows that are recommended for the grizzly bear and elk, and road restrictions could fully mitigate any impacts to the prey base that would be utilized by a wolf pack. The reclamation that is being recommended for the roads will restore the area to its state prior to entry for gas/oil exploration.

Production of the Exploration Wells or 3 Well Field

a. Chevron Alternatives

Placement of production facilities in the vicinity of Palookaville and using the Whiterock Pass route (alternative 2) to access the well site will result in a "no effect" situation for the wolf. This is based on the requirement of remote monitoring of the well head which would reduce on-site visits during the winter and spring seasons. If feasible, visits that are required during winter or spring will be done on an ATV that is commensurate with the season and the recreation traffic that is allowed in the area. The road will be managed for the general public in accordance with the Lewis and Clark National Forest Travel Plan (Forest Service, 1988). The five-month timing restriction for any heavy maintenance or construction will allow for such action to happen with no disturbance to the prey base while on their winter ranges. Even though the road passes through elk and moose winter range in the Badger Cabin vicinity, this area is on the upper elevations of the winter range and winter concentrations of the prey species is lower in the drainage of Badger Creek.

b. Fina Alternatives

Placement of production facilities at False Summit or on the Blackfeet Indian Reservation east of Palookaville, and the use of alternative A2 as an access route would result in "no effect" on the gray wolf. This is based on the requirement of remote monitoring of the well head, thus reducing visits to the well head during the winter and spring seasons. If the pipeline corridor to the Reservation is needed, there would only be a trail access along it and additional trails would be closed for mitigation. This would not create any more additional impacts than are presently ongoing. If visits are required during winter or spring, they will be done on an ATV that is commensurate with the season and the recreation traffic that is allowed in the area. The well site and access road are on the periphery of the winter range, thus minimizing any impacts to the prey base. The road will be managed for the general public in accordance with the Lewis and Clark National Forest Travel Plan. The five-month timing restriction for any heavy maintenance or construction will allow for such action to happen with no disturbance to the prey base while on their winter ranges.

c. Combination of Both Wells

If the wells were to be permitted at the same time there would be "no effect" on the gray wolf because of the aforementioned reasons under the Fina and Chevron Alternatives. Also the two projects have enough seperation that there is no interaction between the projects as far as overlapping zones-of-influence.

3. Grizzly Bear

Dry Hole Scenario

a. Chevron Alternatives

Selection of alternative 2 would result in a "may effect" situation. The "may effect" situation arises from: 1) temporary reduction in habitat effectiveness and the potential to displace the bear from the zone-of-influence of the road and well site during the operation or 2) the potential to make the bear modify its home range due to project activity. By the use of timing windows, sanitation regulations, reclamation of the road and well site, travel restrictions, and road guards, the impacts could be minimized and would not threaten the continued existence or the recovery of the bear.

b. Fina Alternatives

Selection of alternative A2 to access and drill the well will result in a "may effect" situation. The "may effect" situation arises from a temporary reduction in habitat effectiveness and the potential to displace the bear from the zone-of-influence of the road and well site during the operation. However, through the application of timing windows, road and trail management, and total reclamation of the well site, road and river crossing, the project could be completed without long term impacts to the bear or its recovery.

c. Combination of Both Wells

Allowing both of the wells to be drilled concurrently will result in a "may effect" situation. This is based on the previous statements of effect for the individual projects. However, with the proposed alternatives it is believed that both the projects could take place at the same time on the basis that the projects are separated (at least five miles) and that a displaced bear is not going to encounter the other project within one or two miles of travel. Also, with the recommended trail closures associated with each well, habitat effectiveness is maintained below or within 1% of the existing level (See table 4.13).

Production of the Exploration Well or 3 Well Field

a. Chevron Alternatives

Production of the Chevron well or field would result in a "may effect" situation for the grizzly bear. This is based on the reduction of habitat effectiveness that would result and the long term impacts of additional roads and activity associated with the management of the field. However, with the selection of alternative 2 as an access and pipeline corridor, the field could be produced while minimizing the impacts to the grizzly bear. With the use of the mitigation requirements that have been stated for the Chevron well and the general requirements that apply to both wells, the continued existence of the bear would not be threatened, and recovery would continue.

b. Fina Alternatives

Production of the Fina well or field would result in a "may effect" situation for the grizzly bear. This is based on the reduction of habitat effectiveness that would result and the long term impacts of additional roads and activity associated with the management of the field. However, with the selection of Alternative A2 and locating the production facilities outside of Forest Service lands, impacts will be minimized. With the use of the mitigation requirements that have been stated for the Fina well and the general requirements that apply to both wells, the continued existence of the bear would not be threatened, and recovery would continue.

c. Combination of Both Wells

Production of both wells would result in a "may effect" situation because of the fact that each well by itself would result in a "may effect". Therefore the reasons of the effect is the same as for the individual well.

Because the project will result in a "may effect" situation formal consultation with the Fish and Wildlife Service will take place in accordance with the Endangered Species Act Section 7.

VII. COORDINATION

Informal consultation with the US Fish and Wildlife Service has taken place for this project. The first such consultation occurred in July 1986 when the project was in its infancy and a three-day trip was spent visiting the area and looking at several alternative routes for Chevron. The latest meeting was held on December 2, 1988 to discuss a rough draft of the Biological Evaluation. Another review of the Biological Evaluation will take place before it is submitted for Formal Consultation.

Review of the Biological Evaluation by the Montana Department of Fish, Wildlife, and Parks will also take place in the review of the EIS.

LITERATURE CITED

Aune, K., Stives, T., and Madel,M., 1984, Rocky Mountain Front Grizzly Bear Monitoring and Investigation, Montana Dept. of Fish, Wildlife and Parks, Helena, 238 p.

Aune,K., 1985, Rocky Mountain Front Grizzly Bear Monitoring and Investigation, Montana Dept. of Fish, Wildlife and Parks, Helena, 238 p.

Aune,K., Madel, M. and Hunt, C., 1986, Rocky Mountain Front Grizzly Bear Monitoring and Investigation, Montana Dept. of Fish, Wildlife and Parks, Helena, 175 p.

Aune,K., 1987, East Front Grizzly Studies, Montana Dept. of Fish, Wildlife and Parks, Helena, 193 p.

Dood, A.R., Brannon, R.D., and Mace, R.D., 1986, Final Programmatic Environmental Impact Statement: The Grizzly Bear in Northwestern Montana: Montana Department of Fish, Wildlife, and Parks, Helena, 287 p.

Forest Service et. al., 1987, Cumulative Effects Analysis Process for the Rocky Mountain Front Northern Continental Divide Grizzly Bear Ecosystem (working copy), Forest Service, Montana Department of Fish, Wildlife and Parks, Bureau of Land Management, Fish and Wildlife Service.

Interagency Rocky Mountain Front Wildlife Monitoring/Evaluation Program, 1987, Management Guidelines for Selected Species: Rocky Mountain Front Studies, Bureau of Land Management, 71 p.

National Wildlife Federation, 1987, Grizzly Bear Compendium. IGBC, 540 p.

Mattsen, V. and Ream, R., 1978, Current status of the Gray Wolf (*Canis lupus*) in the Rocky Mountain Front: Wolf Ecology Project, Univ. of Montana, Missoula.

Schallenberger, A., 1974, Wildlife Habitat Survey Report: Badger Creek-Two Medicine Management Unit, USDA, Lewis and Clark National Forest, 50 p.

USDI-Fish and Wildlife Service, 1988, Wolf Occurrence Report Form A.

USDI-Fish and Wildlife Service, 1986, Interagency Grizzly Bear Guidelines. 99 p.

TABLE 4.1

FINA ALTERNATIVES - EXPLORATION

OPERATING WINDOW: Yearlong	A2	B2	C2	D1	F8	F9	E
-Cumulative Effects Model Outputs (Grizzly bear) ----spring habitat effectiveness	19.82%	20.11%	20.28%	20.71%	19.09%	20.00%	18.12%
----spring mortality risk	.050	.051	.051	.052	.048	.048	.047
----habitat units in ZI	2489	2925		4729		3348	
----reduced habitat units	1832	2137		3400		2539	
----shv in ZI	.539	.531		.453		.476	
----summer habitat effectiveness	24.83%	25.17%	25.32%	25.30%	24.09%	24.33%	23.09%
----summer mortality risk	.113	.114	.114	.113	.111	.110	.109
----habitat units in ZI	2763	2838		5079		3529	
----reduced habitat units	2036	2445		3657		2694	
----shv in ZI	.598	.607		.486		.501	
----fall habitat effectiveness	31.13%	31.43%	31.62%	31.40%	30.38%	30.28%	29.38%
----fall mortality risk	.206	.207	.208	.206	.204	.202	.202
----habitat units in ZI	3095	3654		5481		3657	
----reduced habitat units	2277	2668		3947		2791	
----shv in ZI	.670	.663		.525		.519	
----total acres in ZI	4620	5510		10445		7040	
----ave. habitat effectiveness	25.26%	25.57%	25.74%	25.80%	24.52%	24.87%	23.53%
-Difference between ave HE & Existing Situation	1.7%	2.0%	2.2%	2.3%	0.99%	1.3%	0.0%

TABLE 4.2

FINA ALTERNATIVES - EXPLORATION

OPERATING WINDOW: 5.0 Month	A2	B2	C2	D1	F8	F9	E
-Cumulative Effects Model Outputs (Grizzly bear) ----spring habitat effectiveness	18.08%	18.08%		17.74%		18.08%	18.12%
----spring mortality risk	.047	.047		.046		.047	.047
----reduced habitat units	0000	0000		0000		0000	
----summer habitat effectiveness	24.83%	25.17%		25.30%		24.33%	23.09%
----summer mortality risk	.113	.114		.113		.110	.109
----reduced habitat units	2036	2445		3019		1440	
----fall habitat effectiveness	31.48%	31.84%		32.01%		30.71%	29.38%
----fall mortality risk	.207	.208		.207		.203	.202
----reduced habitat units	2726	3195		3890		1742	
----ave. habitat effectiveness	24.80%	25.03%		25.02%		24.37%	23.53%
-Difference between ave HE & Existing Situation	1.3%	1.5%		1.5%		0.8%	0.0%

TABLE 4.3

CHEVRON ALTERNATIVES - EXPLORATION

OPERATING WINDOW: Yearlong	2	6A	6B	7A	7B	8	9	12
-Cumulative Effects, Model Outputs (Grizzly bear) -----spring habitat effectiveness	22.04%	22.34%	22.65%	23.30%	23.14%	19.12%	20.06%	18.12%
-----spring mortality risk	.054	.056	.056	.058	.057	.048	.048	.047
-----habitat units in ZI	7690		6708		7426		3424	
-----reduced habitat units	5487		4799		5303		2608	
-----shv for ZI	.487		.507		.519		.459	
-----summer habitat effectiveness	25.73%	27.57%	27.92%	28.46%	28.31%	24.20%	24.44%	23.09%
-----summer mortality risk	.112	.120	.120	.122	.121	.111	.110	.109
-----habitat units in ZI	8494		8027		8689		3674	
-----reduced habitat units	6077		5750		6214		2826	
-----shv for ZI	.538		.606		.607		.492	
-----fall habitat effectiveness	31.51%	33.79%	34.12%	34.68%	34.50%	30.48%	30.38%	29.38%
-----fall mortality risk	.204	.214	.214	.216	.215	.204	.203	.202
-----habitat units in ZI	8975		8557		9253		3795	
-----reduced habitat units	6420		6128		6614		2914	
-----shv for ZI	.569		.646		.647		.509	
-----total acres in ZI	15780		13234		14310		7460	
-----ave. habitat effectiveness	26.43%	27.90%	28.23%	28.81%	28.65%	24.60%	24.96%	23.53%
--Difference between ave HE & existing situation	2.9%	4.4%	4.7%	5.3%	5.1%	1.1%	1.4%	0.0%

TABLE 4.4

CHEVRON ALTERNATIVES - EXPLORATION

OPERATING WINDOW: 8.5 Month	2	6A	6B	7A	7B	8	9	12
-Cumulative Effects, Model Outputs (Grizzly bear)								
——spring habitat effectiveness	17.51%	18.08%	18.08%	18.08%	18.08%	18.05%	18.08%	18.12%
——spring mortality risk	.046	.047	.047	.047	.047	.047	.047	.047
——reduced habitat units	0000		0000		0000		0000	
——summer habitat effectiveness	24.98%	26.63%	26.84%	27.32%	27.14%	23.94%	24.14%	23.09%
——summer mortality risk	.111	.117	.118	.119	.118	.111	.110	.109
——reduced habitat units	4849		4452		4811		2471	
——fall habitat effectiveness	31.47%	33.83%	34.12%	34.72%	34.50%	30.48%	30.38%	29.38%
——fall mortality risk	.204	.213	.214	.216	.215	.204	.203	.202
——reduced habitat units	6420		6128		6614		2914	
——ave. habitat effectiveness	24.65%	26.18%	16.35%	26.71	26.57%	24.16	24.20%	23.53%
–Difference between ave HE & existing situation	1.1%	2.6%	2.8%	3.2%	3.0%	0.7%	0.7%	0.0%

TABLE 4.5
CHEVRON/FINA ALTERNATIVE COMBINATIONS - EXPLORATION

EVALUATION CRITERIA FACTORS	2-A2	2-B2	2-D1	2-F9	6B-B2	6B-D1	12-E
- Cumulative Effects, Model Outputs (Grizzly bear)-yearlong							
——spring habitat effectiveness	23.76%	24.05%	24.46%	24.12%	24.28%	25.47%	18.12%
——spring mortality risk	.058	.058	.059	.057	.059	.061	.047
——summer habitat effectiveness	27.34%	27.68%	28.03%	27.71%	29.49%	30.22%	23.09%
——summer mortality risk	.116	.117	.117	.115	.124	.125	.109
——fall habitat effectiveness	33.24%	33.54%	33.86%	33.46%	35.75%	36.36%	29.38%
——fall mortality risk	.208	.209	.210	.207	.218	.219	.202
——AVE HABITAT EFFECTIVENESS	28.11%	28.42%	28.78%	28.43%	29.84%	30.68%	23.53%
–DIFFERENCE BETWEEN AVE HE & EXISTING SITUATION	4.58%	4.89%	5.25%	4.90%	6.31%	7.15%	0.0%

TABLE 4.5 (CONT')
CHEVRON/FINA ALTERNATIVE COMBINATIONS - EXPLORATION

EVALUATION CRITERIA FACTORS	7B-B2	7B-D1	9-A2	9-B2	9-D1	9-F9	12-E
- Cumulative Effects, Model Outputs (Grizzly bear)-yearlong							
——spring habitat effectiveness	24.41%	25.94%	21.78%	22.07%	22.74%	20.42%	18.12%
——spring mortality risk	.060	.062	.052	.052	.053	.049	.047
——summer habitat effectiveness	29.52%	30.60%	26.05%	26.39%	26.74%	24.74%	23.09%
——summer mortality risk	.124	.126	.114	.115	.115	.111	.109
——fall habitat effectiveness	35.77%	36.74%	32.11%	32.41%	32.66%	30.72%	29.38%
——fall mortality risk	.218	.220	.207	.208	.208	.204	.202
——AVE HABITAT EFFECTIVENESS	29.90%	31.09%	26.65%	26.96%	27.38%	25.29%	23.53%
–DIFFERENCE BETWEEN AVE HE & EXISTING SITUATION	6.37%	7.56%	3.12%	3.43%	3.85%	1.76%	0.0%

TABLE 4.6

FINA ALTERNATIVES - PRODUCTION

OPERATING WINDOW: Production	A2	B2	D1	E
-Cumulative Effects Model Outputs (Grizzly bear) -----spring habitat effectiveness	18.40%	18.55%	18.34%	18.12%
-----spring mortality risk	.048	.049	.049	.047
-----habitat units in ZI	2042	2521	4282	
-----reduced habitat units	408	525	943	
-----shv in ZI	.537	.528	.445	
-----summer habitat effectiveness	23.31%	23.47%	23.31%	23.09%
-----summer mortality risk	.111	.112	.111	.109
-----habitat units in ZI	2254	2886	4570	
-----reduced habitat units	451	602	1371	
-----shv in ZI	.593	.604	.475	
-----fall habitat effectiveness	29.56%	29.72%	29.55%	29.38%
-----fall mortality risk	.204	.205	.204	.202
-----habitat units in ZI	2542	3152	4928	
-----reduced habitat units	508	656	1623	
-----shv in ZI	.669	.660	.512	
-----total acres in ZI	3800	4775	9625	
-----ave. habitat effectiveness	23.76%	23.89%	23.73%	23.53%
-Difference between ave HE & Existing Situation	0.23%	0.36%	0.20%	

TABLE 4.7

CHEVRON ALTERNATIVES - PRODUCTION

OPERATING WINDOW: Production	WHITEROCK	TWO MED	EXISTING SIT
-Cumulative Effects, Model Outputs (Grizzly bear) -----spring habitat effectiveness	18.23%	19.25%	18.12%
-----spring mortality risk	.050	.053	.047
-----habitat units In ZI	6522	6946	
-----reduced habitat units	1340	1411	
-----shv In ZI	.510	.528	
-----summer habitat effectiveness	23.40%	24.21%	23.09%
-----summer mortality risk	.110	.116	.109
-----habitat units In ZI	7236	8083	
-----reduced habitat units	2910	1641	
-----shv in ZI	.566	.614	
-----fall habitat effectiveness	29.67%	30.45%	29.38%
-----fall mortality risk	.202	.209	.202
-----habitat units in ZI	7612	8613	
-----reduced habitat units	3466	1804	
-----shv In ZI	.595	.655	
-----total acres In ZI	12795	13155	
-----ave. habitat effectiveness	23.77%	24.64%	23.53%
--Difference between ave HE & existing situation	.24%	1.11%	0.0%

TABLE 4.8

COMBINED ALTERNATIVE - EXPLORATION

OPERATING WINDOW: Fina-5month, Chevron-8.5month	2_A2	12_E	DIFFERENCE
-Cumulative Effects, Model Outputs (Grizzly bear) -----spring habitat effectiveness	18.12%	18.12%	00.00%
-----spring mortality risk	.047	.047	.000
-----habitat units in ZI	10179		
-----reduced habitat units	0000		
-----summer habitat effectiveness	26.68%	23.09%	3.59%
-----summer mortality risk	.114	.109	.005
-----habitat units in ZI	11257		
-----reduced habitat units	6885		
-----fall habitat effectiveness	33.59%	29.38%	4.21%
-----fall mortality risk	.209	.202	.007
-----habitat units in ZI	12070		
-----reduced habitat units	9146		
-----total acres in ZI	20400		
-----ave. habitat effectiveness	30.13%	26.23%	3.9%

TABLE 4.9

CHEVRON ALTERNATIVES - PRODUCTION

OPERATING WINDOW: Production	WHITEROCK-A2	WHITEROCK-D1	EXISTING SIT
-Cumulative Effects, Model Outputs (Grizzly bear) —spring habitat effectiveness	18.76%	18.77%	18.12%
—spring mortality risk	.052	.052	.047
—habitat units in ZI	8213	12572	
—reduced habitat units	1787	2213	
—summer habitat effectiveness	23.67%	23.95%	23.09%
—summer mortality risk	.111	.112	.109
—habitat units in ZI	9181	13828	
—reduced habitat units	3144	4530	
—fall habitat effectiveness	29.92%	30.26%	29.38%
—fall mortality risk	.204	.206	.202
—habitat units in ZI	9828	14842	
—reduced habitat units	3701	5469	
—total acres in ZI	15610	25440	
—ave. habitat effectiveness	24.12%	24.33%	23.53%
-Difference between ave HE & existing situation	0.6%	0.8%	0.0%

TABLE 4.10

MRI FOR ENTIRE BMU FOR CHEV/FINA - EXPLORATION

OPERATING WINDOW: 5MO/8.5MO	A2 W/A	A2 WO/A	EXIST	2 W/A	2 WO/A	EXIST
-Cumulative Effects Model Outputs (Grizzly bear) ----spring mortality risk	.047	.047	.047	.046	.046	.047
----summer mortality risk	.113	.111	.109	.111	.108	.109
----fall mortality risk	.207	.204	.202	.204	.199	.202

TABLE 4.11

MRI FOR ZONE OF INFLUENCE FOR CHEV/FINA - EXPLORATION

OPERATING WINDOW: 5MO/8.5MO	A2 W/A	A2 WO/A	%CHANGE	2 W/A	2 WO/A	%CHANGE
-Cumulative Effects Model Outputs (Grizzly bear) ----spring mortality risk	.000	.000	0000	.000	.000	0000
----summer mortality risk	.004	.001	75%	.006	.002	67%
----fall mortality risk	.005	.002	60%	.008	.003	62%

TABLE 4.12

COMPARISON OF PREFERRED ALTERNATIVE W/ MITIGATION WO/ MITIGATION-EXPLORATION

OPERATING WINDOW: 5MO/8.5MO	A2 W/MIT	A2WO/MI	EXIST	2 W/MIT	2WO/MIT	EXIST
-Cumulative Effects Model Outputs (Grizzly bear) ----spring habitat effectiveness	10.29%	18.08%	18.12%	10.17%	17.51%	18.12%
----spring mortality risk	.047	.047	.047	.046	.046	.047
----reduced habitat units	158	992		319	786	
----summer habitat effectiveness	23.27%	24.83%	23.09%	23.25%	24.98%	23.09%
----summer mortality risk	.107	.113	.109	.102	.111	.109
----reduced habitat units	2240	3447		5512	7259	
----fall habitat effectiveness	27.63%	31.48%	29.38%	27.51%	31.47%	29.38%
----fall mortality risk	.198	.207	.202	.193	.204	.202
----reduced habitat units	2954	4544		6728	8849	

TABLE 4.13

COMBINED ALTERNATIVE W/MITIGATION WO/MITIGATION - EXPLORATION

OPERATING WINDOW: Fina-5month, Chevron-8.5month	2_A2 WO/MIT	2_A2 W/MIT	12_E
-Cumulative Effects, Model Outputs (Grizzly bear) ----spring habitat effectiveness	18.12%	10.17%	18.12%
----spring mortality risk	.047	.046	.047
----summer habitat effectiveness	26.68%	23.95%	23.09%
----summer mortality risk	.114	.098	.109
----fall habitat effectiveness	33.59%	28.46%	29.38%
----fall mortality risk	.209	.188	.202

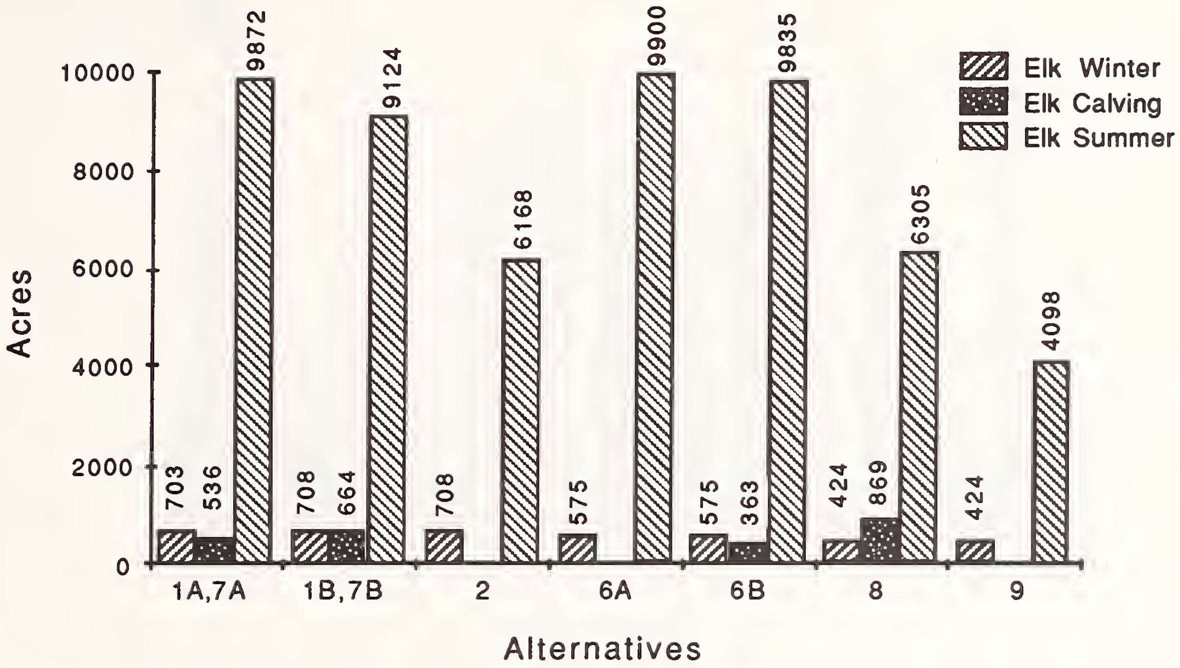


FIGURE 4A.1 Impacted Acres on Wildlife Seasonal Habitat

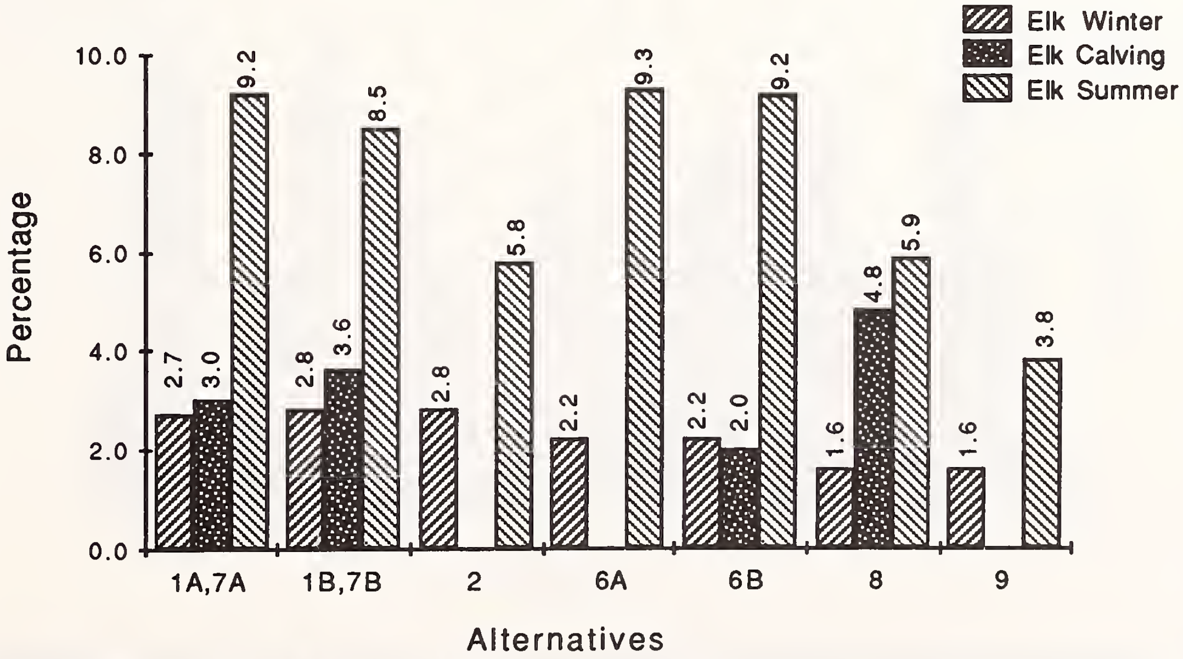


FIGURE 4A.2 Percentage of Impacted Wildlife Seasonal Habitat

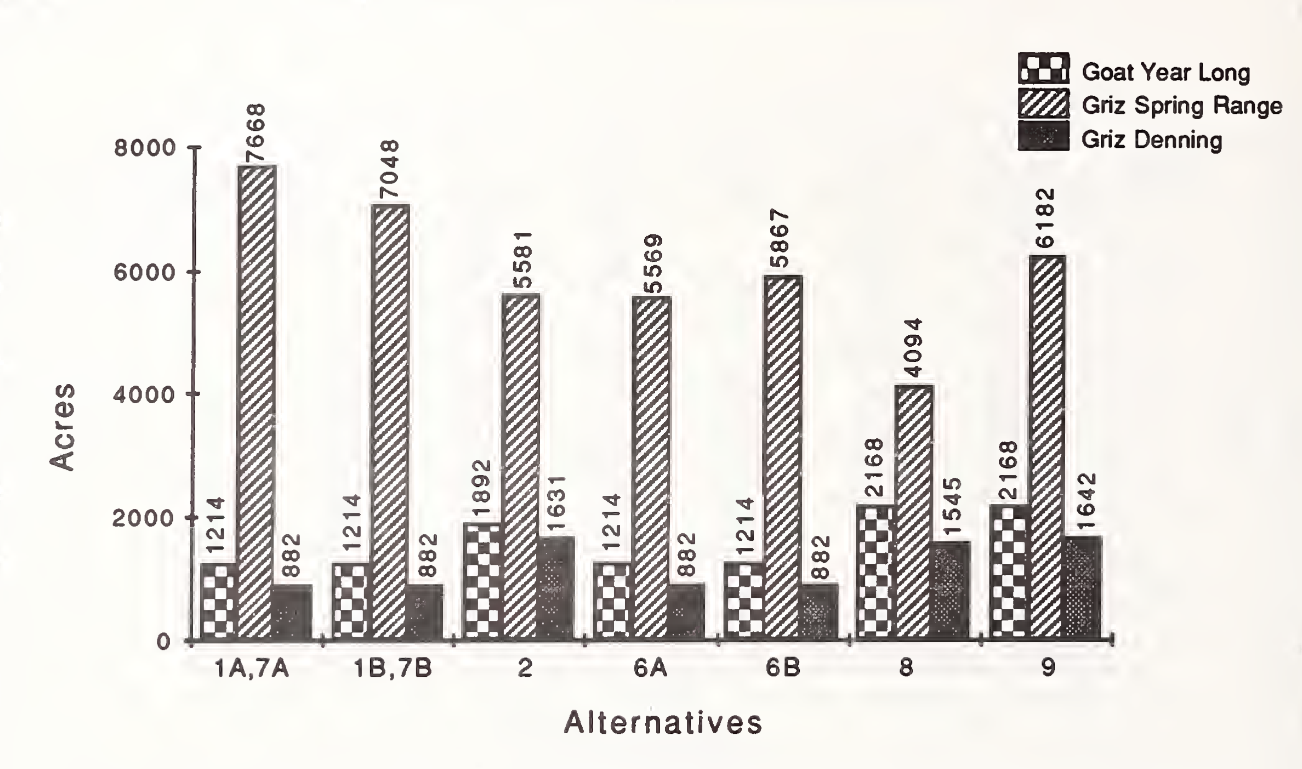


FIGURE 4A.3 Impacted Acres on Wildlife Seasonal Habitat

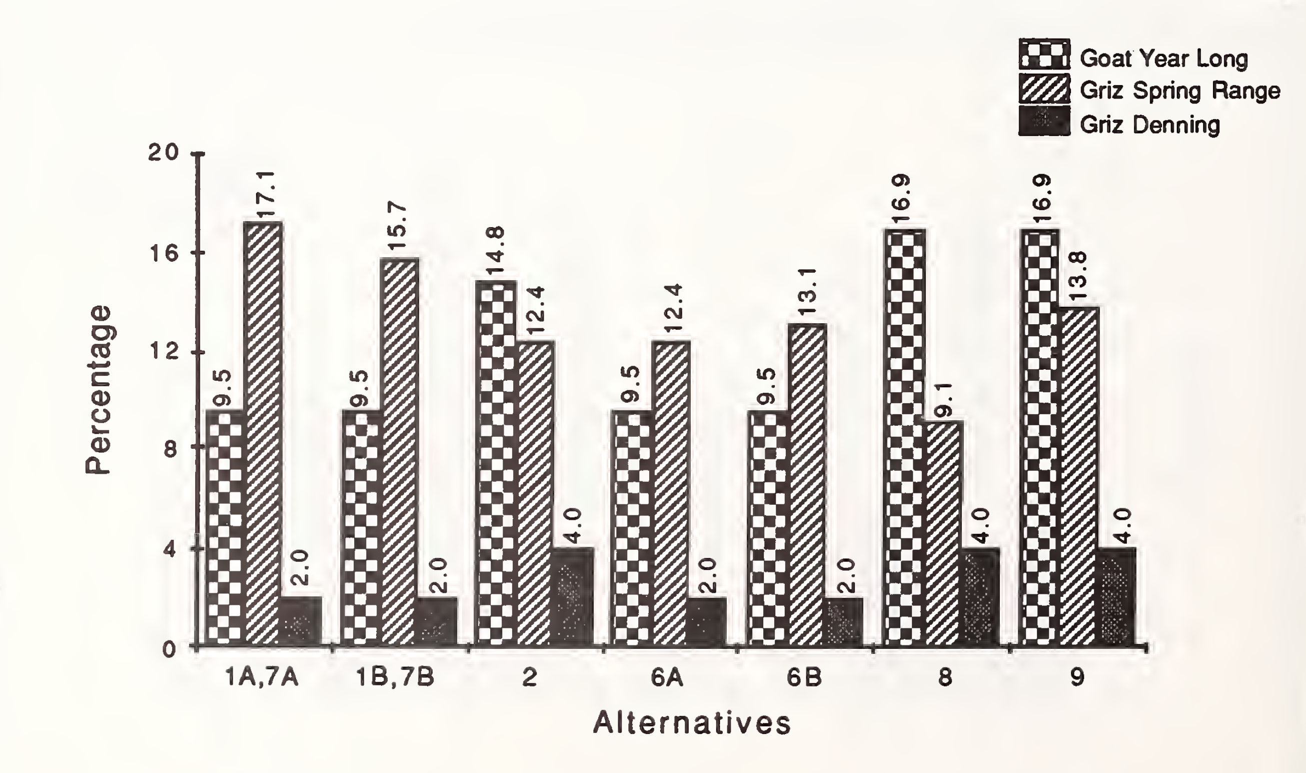


FIGURE 4A.4 Percentage of Impacted Wildlife Seasonal Habitat

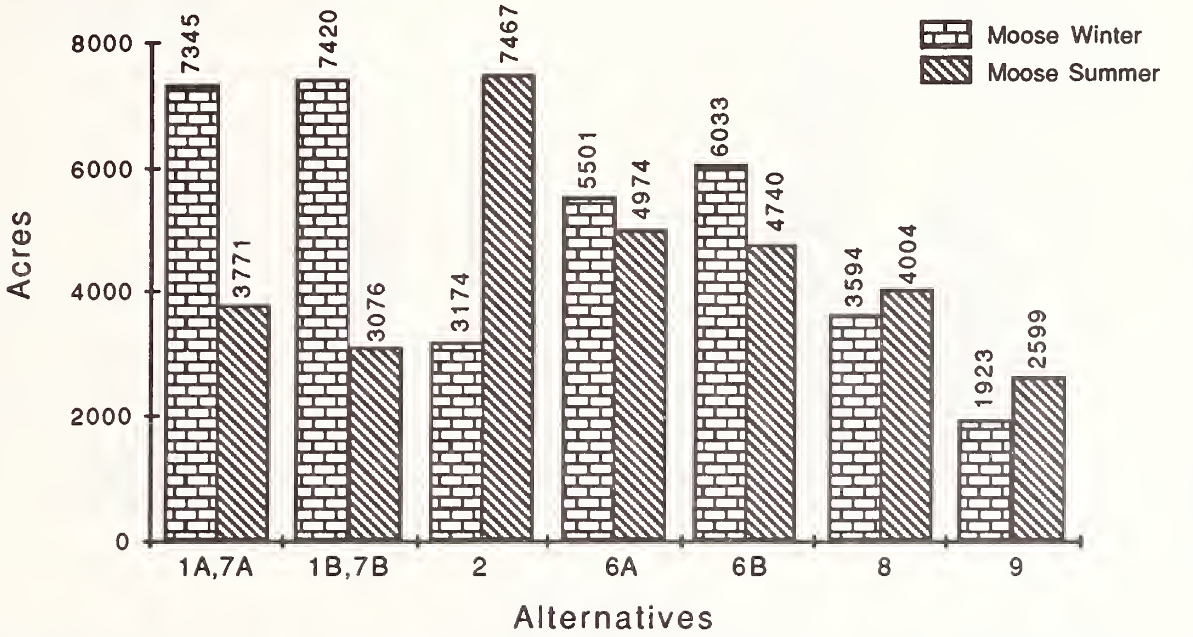


FIGURE 4A.5 Impacted Acres on Wildlife Seasonal Habitat

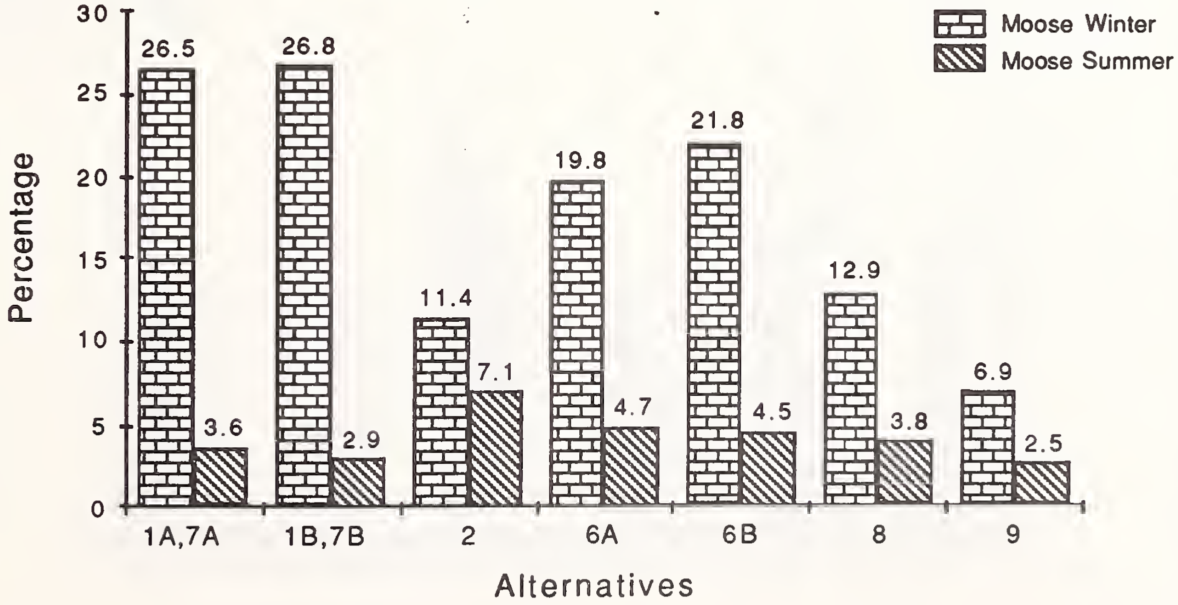


FIGURE 4A.6 Percentage of Impacted Wildlife Seasonal Habitat

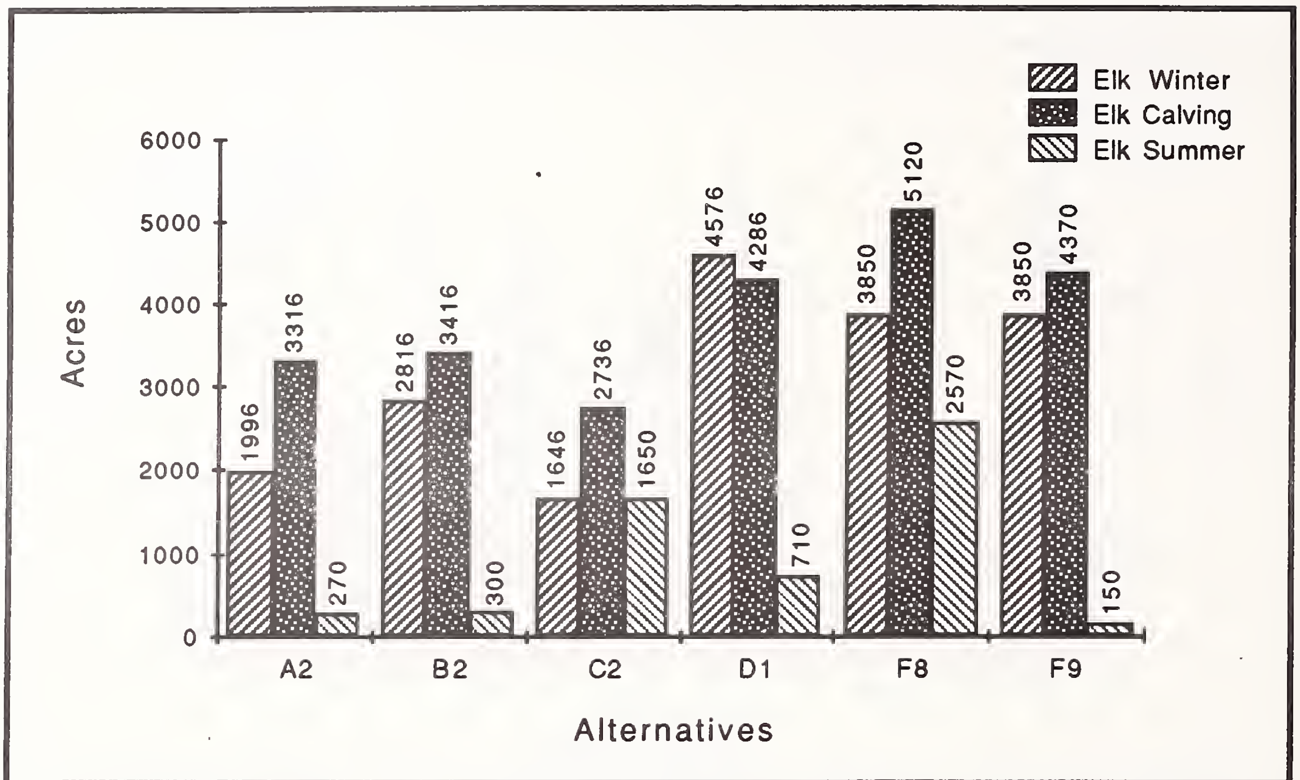


FIGURE 4B.1 Impacted Acres on Wildlife Seasonal Habitat

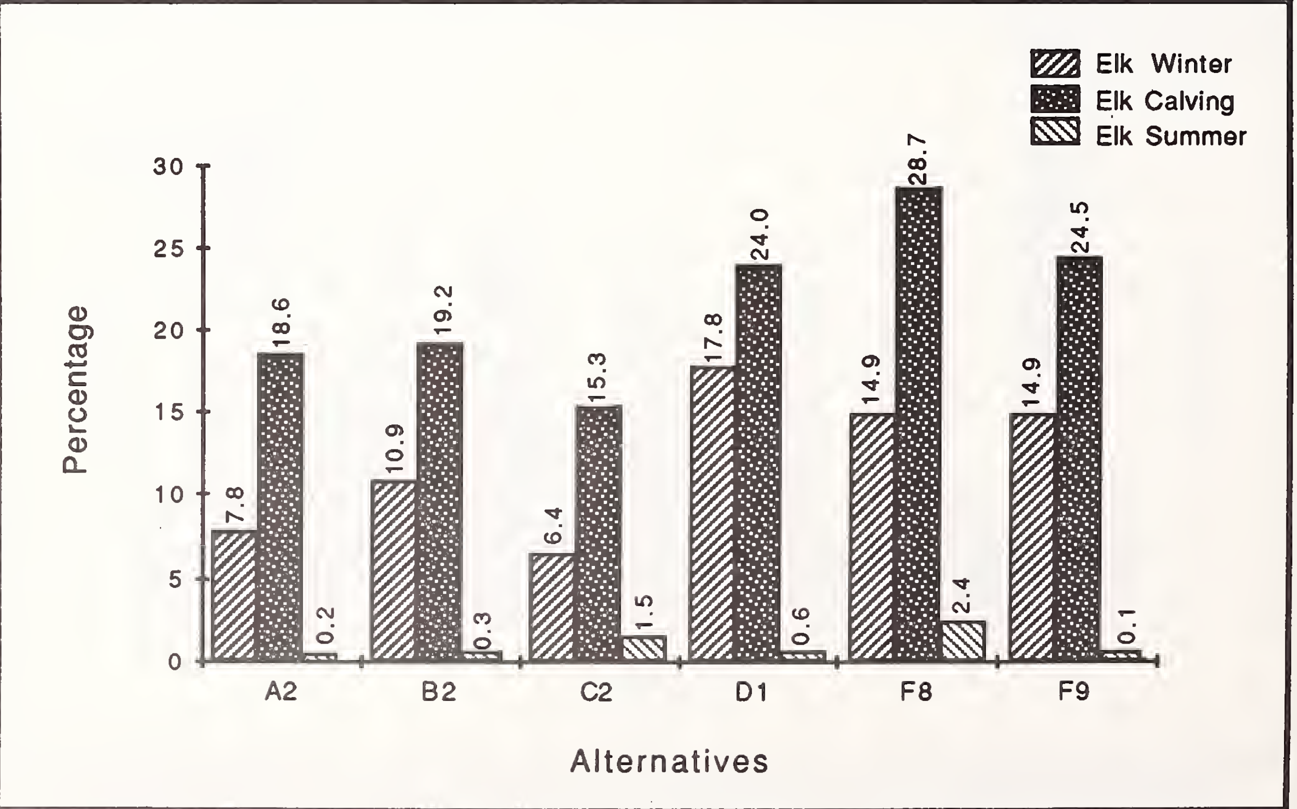


FIGURE 4B.2 Percentage of Impacted Wildlife Seasonal Habitat

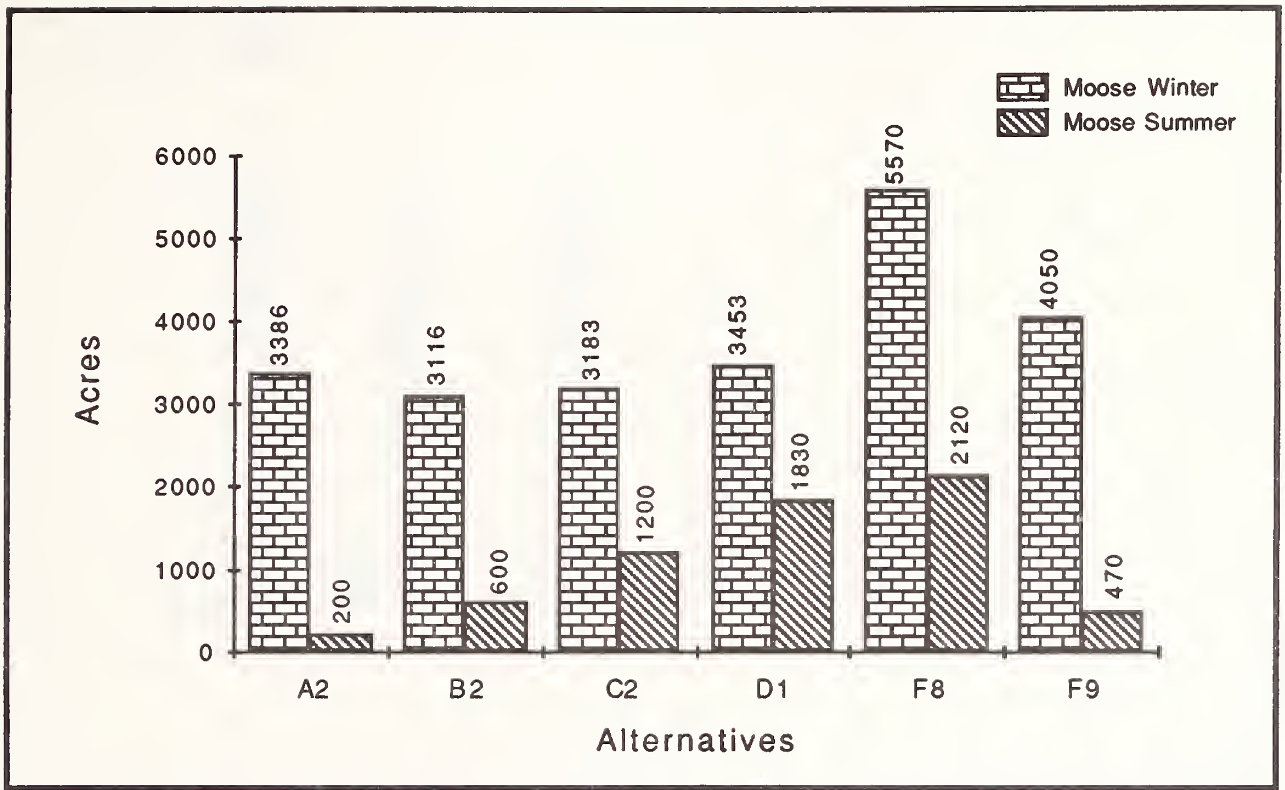


FIGURE 4B.3	Impacted Acres on Wildlife Seasonal Habitat

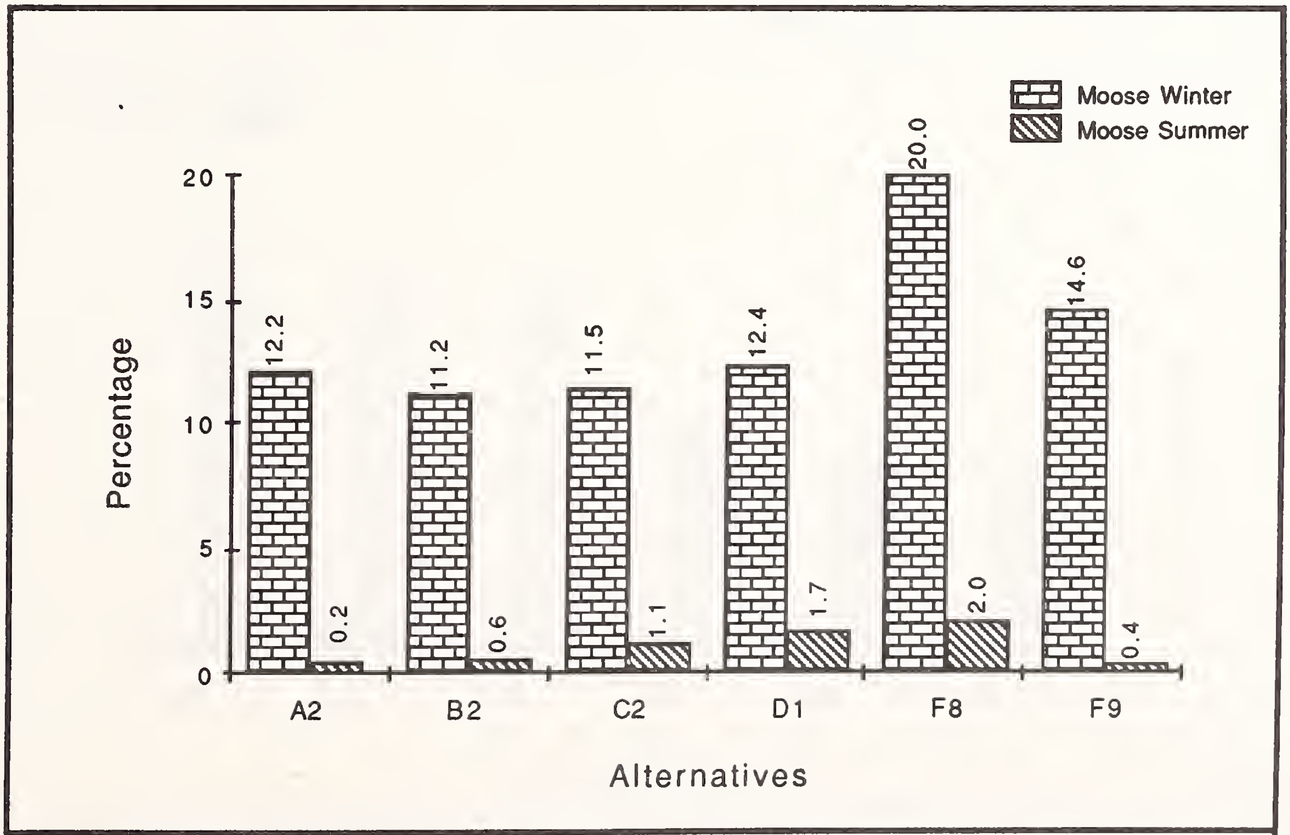


FIGURE 4B.4	Percentage of Impacted Wildlife Seasonal Habitat

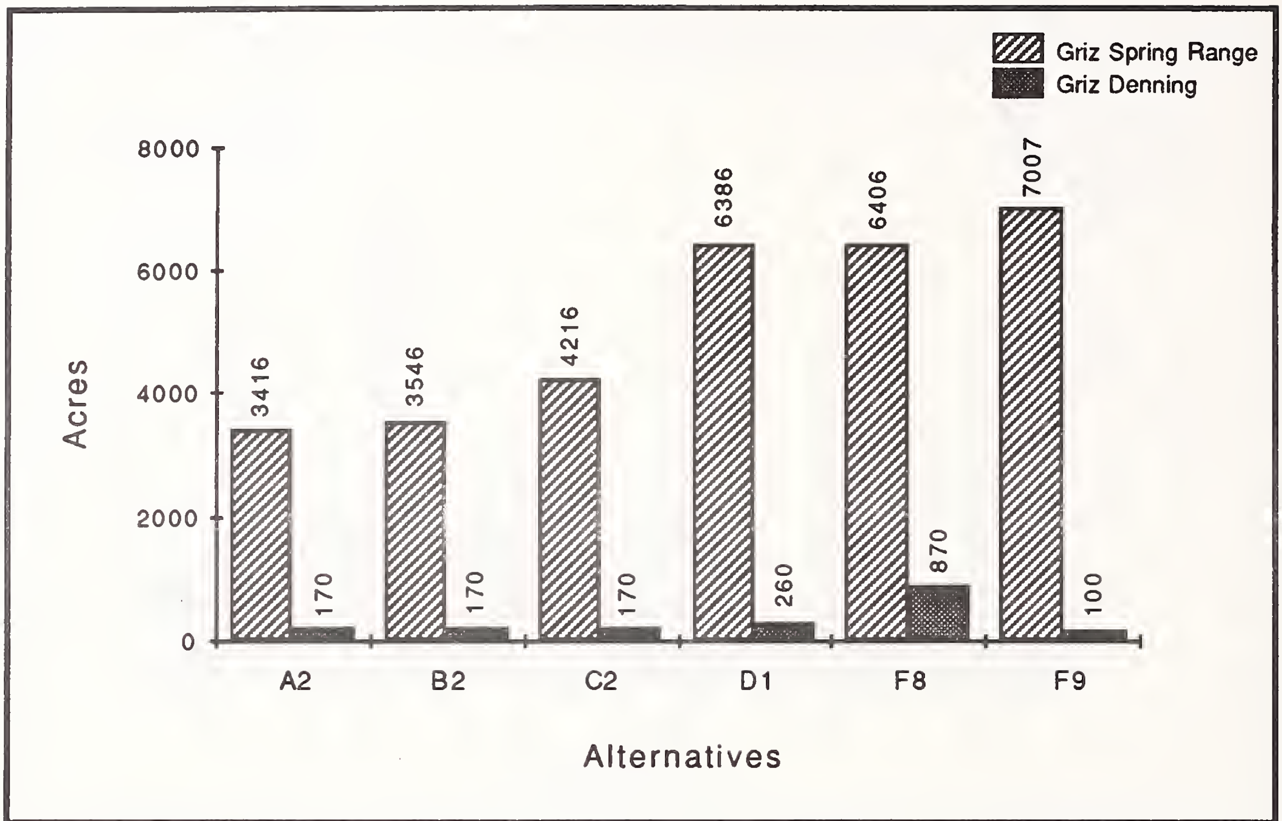


FIGURE 4B.5 Impacted Acres on Wildlife Seasonal Habitat

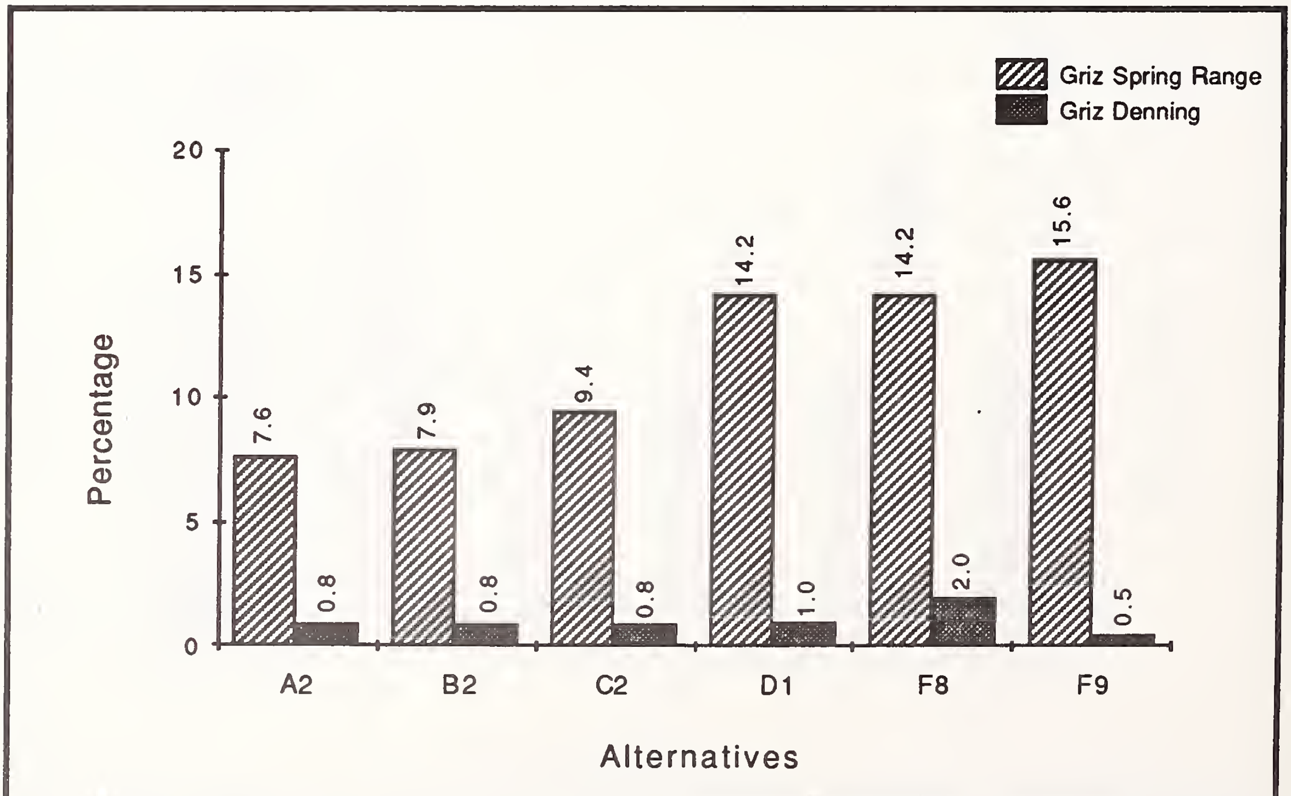


FIGURE 4B.6 Percentage of Impacted Wildlife Seasonal Habitat

APPENDIX G

BIOLOGICAL OPINION

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Fish and Wildlife Enhancement
Federal Bldg., U.S. Courthouse
301 South Park
P.O. Box 10023
Helena, Montana 59626

IN REPLY REFER TO:
M.19 Lewis & Clark NF - Fina/Chevron Oil/
Gas Exploration (6-MT-89-F-005)

July 25, 1989

Mr. John W. Mumma, Regional Forester
U.S. Forest Service, Region 1
Federal Building, P.O. Box 7669
Missoula, Montana 59007

Dear Mr. Mumma:

This is the U.S. Fish and Wildlife Service's (Service) biological opinion prepared in response to your April 21, 1989 request for formal consultation under Section 7 of the Endangered Species Act on Fina Oil and Chemical Company (Fina) and Chevron USA, Inc.'s (Chevron) request to drill exploratory oil/gas wells in the vicinity of Hall Creek and North Badger Creek located on the Lewis and Clark National Forest (Map 1.2, Appendix A).

In early 1984 an environmental assessment and endangered species biological assessment for Fina's proposal (filed October 1983) was completed by the Forest Service and Bureau of Land Management (BLM). On June 26, 1984, the Service issued a jeopardy biological opinion on the proposed project. Through further consultation, the Forest Service designed a new alternative and a no jeopardy biological opinion was issued by the Service on January 14, 1985 on the new alternative. A Decision Notice permitting the company to drill was issued by the BLM on January 31, 1985.

Nine appeals were received by the Interior Board of Land Appeals (IBLA). In August, 1985, IBLA remanded the case to the BLM to resolve four issues. Following resolution of these issues a second Decision Notice was issued by the BLM on April 13, 1987. Eleven appeals were filed with the IBLA on this decision and subsequently a stay of action was granted. At the request of the Forest Service, the Fina decision was returned to the agencies for further analysis.

Because of concerns that surfaced from the Fina appeals, and in order to more fully evaluate the potential cumulative and interrelated effects of two similar actions in the same geographic area, the Forest Service and BLM have decided to combine the analysis of Chevron's and Fina's proposals into one comprehensive environmental impact statement (EIS) and biological assessment for endangered and threatened species.

Based upon our review of the Biological Assessment and the June 1989 Internal Review Copy of the EIS (herein referred to as draft EIS) prepared for the proposed action, the Service concurs with the conclusions reached in the Biological Assessment that there will be no adverse effects upon the bald eagle (Haliaeetus leucocephalus), peregrine falcon (Falco peregrinus), and gray wolf (Canis lupus). Our concurrence with the no effect determination for the wolf is contingent upon remote monitoring of the well heads during the production phase should any or all of the wells be producible and strict adherence to the seasonal restrictions identified in the Biological Assessment. Remote monitoring of the producible well heads will minimize impacts to the ungulate prey base, particularly when they are on their winter ranges.

This biological opinion considers the effects of exploration, development and production, and reclamation on the Fina and Chevron's leases (#M53323 and #25173, respectively) on the grizzly bear (Ursus arctos horribilis). The overall environmental acceptability of the proposed actions are not considered. The Service has examined the proposed actions in accordance with the procedural regulations governing interagency cooperation under Section 7 of the Endangered Species Act of 1973, as amended (50 CFR 402 and USC 1531 et seq).

BIOLOGICAL OPINION

It is the Service's biological opinion that the proposed exploratory oil and gas wells by Fina on lease #M53323 and Chevron on lease #25173 are not likely to jeopardize the continued existence of the grizzly bear. Additionally, it is the Service's biological opinion that these two exploratory wells may be drilled concurrently without jeopardizing the continued existence of the grizzly bear. The scope of this opinion includes the impacts associated with the exploratory drilling of these two wells, production should the wells be producible, and development of a three well field on each lease area.

This opinion is contingent upon: (1) the projects being designed and implemented as described in the preferred alternative identified in the Biological Assessment (Section V) and as summarized in the project description of this opinion; (2) the mitigation and coordination measures outlined in Section V of the Biological Assessment and as summarized in the project description of this opinion; and (3) in the case of production, the technology is available, for the type of petroleum products produced, to remote monitor the well heads. The alternative developed in the 1985 consultation to preclude jeopardy as a result of the Fina project was based, in part, on the production plan submitted by Fina involving remote well head monitoring. Remote monitoring was a condition to preclude jeopardy at that time and remains so today, and is also a condition for the Chevron project.

PROJECT DESCRIPTION

Fina's Proposal: Fina filed an application for a permit to drill (APD) an exploratory well on Federal Lease #M53323 in the Hall Creek vicinity of the Badger-Two Medicine area in October of 1983 (Section 26, T30N, R13W). The preferred alternative for exploration of the Final well site is alternative A-2 of the draft EIS (Biological Assessment, page 13).

Exploration - Roaded access would be from U.S. Highway 2 in the vicinity of False Summit (NW1/4 of Section 15, T30N, R13W). Access would proceed through Sections 14, 15 and 23, then join an existing jeep trail in Section 22 and continue to the well site. Approximately 0.3 miles of road reconstruction (Forest Road Number 9223), 5.7 miles of new road construction, and construction of a bridge across the South Fork Two Medicine River would be required.

Mitigation/Coordination Measures

- A project operating window of July 1 - November 30 will be adhered to for road construction and the drilling of the well and any activity associated with the reclamation of the well site and road.
- The bridge across the South Fork Two Medicine River and access road will be closed to motorized use by the public during the operational period and a road guard at the bridge utilized to restrict traffic to that related to the project.
- A no firearms policy for company employees while on duty will be enforced.
- No construction camp at the well site will be permitted.
- If the well is a dry hole, the road will be obliterated and restored to the contour as specified in Appendix K of the draft EIS from the well site back to the bridge crossing the South Fork Two Medicine River. The portion of the road from the river to the highway will be managed to access a trailhead facility somewhere on the bench between the river and the Highway. The trail will then be managed in accordance with the Lewis and Clark Forest Travel Plan. The bridge decking will be removed, thus maintaining the natural barrier of the river in the spring.
- Motorized use on the following trails will be restricted during the project operational period:

    1. Trail 140 in its entirety (3.5 miles);
    2. Trail 139 from its junction with trail 172 to junction of trail 118 (2.5 miles);
    3. Trail 118 from the private property at Rising Wolf Ranch to the junction with trail 139 (3.5 miles); and
    4. Trail 181 in its entirety (3 miles).

    For the period December 1 - June 30, these trails will be managed in accordance with the Forest Travel Plan.

It is anticipated that by using a five month timing window, it will take two to three years to complete the road construction, the drilling and reclamation (draft EIS, page IV-100).

Development and Production of Well or Three Well Field - If the well is a producer and a single well field or the projected three well field is developed (Reference Appendix L, draft EIS), then any additional construction, drilling or heavy maintenance will take place in the five month timing window identified above for the exploration phase (i.e., July 1 - November 30).

Mitigation/Coordination Measures

- The bridge will be left in place but controlled so that the only traffic that occurs outside the Forest Travel Plan restrictions will be that associated with the project.

- Production facilities will be located adjacent to Highway 2 in Section 15, T30N, R13W. The well head(s) will be remote monitored after the first year or two of production to reduce visitation to the well site(s). The company will make their visits to the well by the appropriate all-terrain vehicle for the season, thereby being commensurate with the motorized use that is presently authorized under the Forest Travel Plan. The access road will not be snowplowed in the winter.

- A no firearms policy for company employees while on duty will continue to be enforced.

- Once the transportation system is designed for the field, the trails in the analysis area will be examined to determine what trail system will best serve as access for the area and also mitigate for the road system that will have to be left in place for the life of the field. It is anticipated that some or all of the trails closed for exploration would also be closed for production to make up for reduced habitat effectiveness (reduced habitat units).

Chevron's Proposal: Chevron has submitted an APD for an exploratory well on its Federal Lease #M-25173 northeast of Goat Mountain (Section 35, T29N, R12W). The preferred alternative for the exploration of the Chevron well site is Alternative 2 of the draft EIS (Biological Assessment, page 13).

Exploration - Roaded access would be via Bureau of Indian Affairs (BIA) Road 141 and Forest Service Road 9128 to Palookaville with reconstruction and construction to the well site via Whiterock Pass and the North Fork of Badger Creek. Approximately 5.2 miles of BIA Road 141 would be reconstructed and 14.9 miles of new road would be constructed (includes portion of road from Palookaville to Badger Cabin that would be reconstructed).

Mitigation/Coordination Measures

- An 8.5 month project operating window of July 15 to March 31 will be adhered to for road construction on Forest Service lands (except Whiterock Pass to BIA 2), drilling of the well and any activity associated with the reclamation of the well site and road.

- A road guard will be used at the top of Whiterock Pass after July 15 and at Palookaville after December 1 to control traffic so that the only traffic that occurs outside the restrictions of the Forest Travel Plan will be that associated with the project.

- A no firearms policy for company employees while on duty will be enforced.
- No construction camp at the well site from July 15 to November 30 will be permitted.
- If the well is a dry hole, the road will be obliterated and restored to the contour as specified in Appendix K of the draft EIS, from the well site to Badger Cabin. The remainder of the road will be managed in the same manner as the present road is being managed under the Forest Travel Plan.
- Motorized use (excluding snowmobiles) of the following trails will be restricted during the project operational period:

  1. Trail 103 from Badger Cabin to the Continental Divide (7 miles);
  2. Trail 141 Lee Creek (4 miles) and Trail 142 Kipp Creek (3 miles); and
  3. Trail 144 should be open to foot and horseback travel only from the junction with Trail 103 to the North Badger Creek and closed to all travel from where it crosses North Badger Creek to its junction with the South Badger Creek (5.5 miles).

  For the period April 1 - July 14, these trails will be managed in accordance with the Forest Travel Plan.

It is anticipated that by using an 8.5 month timing window for project operations, it will take three to four years to complete the road construction, drilling of the well, and reclamation (draft EIS, page IV-3).

Development and Production of the Well or Three Well Field - If the well is a producer and a single well field or the projected three well field (reference Appendix L, draft EIS) is developed, then any additional construction, drilling or heavy maintenance will take place in the 8.5 month timing window identified above for the exploration phase.

Mitigation/Coordination Measures

- The road will be controlled so that the only traffic that occurs outside the Forest Travel Plan restrictions will be that associated with the project.
- Production facilities will be located adjacent to BIA 2 or BIA 1. The well head(s) will be remote monitored after the first year or two of production to reduce visitation to the well site(s). The company will make their visits to the well by the appropriate all terrain vehicle for the season, thereby being commensurate with the motorized use that is presently authorized under the Forest Travel Plan. The access road to the well site(s) will not be snowplowed in the winter.

- A no firearms policy for company employees while on duty will be enforced.

- Once the transportation system is designed for the field, the trails in the analysis area will be examined by the Forest Service to determine what trail system will best serve as access for the area and also mitigate for the road system that will have to be left in place for the life of the field. It is anticipated that some or all of the trails closed for exploration would be the trails closed for production of the field.

Combined Production Facilities

Should both the Fina and Chevron wells be producible and a decision made to produce both wells at one central location, the least impactive site will be to locate the facilities east of Palookaville somewhere on the Reservation (Biological Assessment, page 16). The pipeline for the Fina field could follow the proposed D1 route (draft EIS). However, instead of a road corridor this would just be a pipeline corridor associated with a trail for checking the pipeline. Once this corridor is established, other trails could be closed to mitigate for a new trail in the area. The new trail would then be managed for the public like all the rest of the trail system.

Current Status of the Grizzly Bear

There is an estimated current population of 549-813 grizzly bears for the Northern Continental Divide grizzly bear ecosystem (Montana Department of Fish, Wildlife and Parks, Grizzly Bear EIS, 1986). Approximately 14 percent of the habitat for this population occurs on the Lewis and Clark National Forest.

Using data from Aune et al. (In Prep.), the Service estimates a population of 11.6 to 17.5 grizzlies in the Badger-Two Medicine Bear Management Unit (BMU). Minimum counts of marked and unmarked grizzlies in the Badger-Two Medicine area averaged 7.0 bears for the period 1984-1986 (Aune et al. In Press). Using a counting efficiency of 40-60%, we calculated 11.6 to 17.4 bears in the BMU (7/.40 = 17.5; 7/.60 = 11.6).

The recovery goals for the grizzly bear population in the Northern Continental Divide Ecosystem (Ecosystem) were established in the 1982 Grizzly Bear Recovery Plan as:

- a population of 440-680 with a mean goal of 560 bears; and

- attainment of a set of biological parameters.

Parameters for assessing population status have been identified for inclusion in the revision of the 1982 Grizzly Bear Recovery Plan. These parameters include (1) the unduplicated sightings of females with cubs of the year, (2) distribution of females with young in the Ecosystem, (3) mortality, and (4) a conservation strategy. Targets for parameters 1, 2 and 3 are presently being established. The Conservation Strategy is in preparation by an Interagency Working Group. Table 1 presents population parameters from the 1982 Grizzly Bear Recovery Plan, the draft recovery parameters and their targets being considered for the revised Recovery Plan, and current parameter estimates.

Table 1. Grizzly Bear Population Status in the Northern Continental Divide Ecosystem

PARAMETERS	1982 RECOVERY PLAN*	CURRENT ESTIMATE**
POPULATION GOAL:	560	549 - 813
MEAN CUB LITTER SIZE	1.78	1.7 - 2.66
MEAN LITTER FREQUENCY (YEARS) (REPRODUCTIVE CYCLE)	3.0	2.1 - 3.3
MEAN PRODUCTION RATE (REPRODUCTIVE CYCLE)	0.593	0.515 - 1.267
ANNUAL NUMBER OF FEMALES WITH CUBS	56.0	68
AVERAGE ANNUAL KNOWN MAN-CAUSED MORTALITY	25.0	18.2
AVERAGE ANNUAL TOTAL MORTALITY AS % OF TOTAL POPULATION	17.1 - 18.7	7.1 (MAN-CAUSED)

*STATISTICS OR THEIR BIOLOGICAL EQUIVALENTS COMPUTED AS A RUNNING SIX-YEAR AVERAGE (PAGE 60)

**MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS LETTER DATED NOVEMBER 28, 1988

PARAMETERS	NCD RECOVERY DRAFT #3	CURRENT ESTIMATE
PRODUCTION - UNDUPLICATED COUNT OF FEMALES WITH CUBS OF THE YEAR	30*	26.0 (1987-27; 1988-25)
OCCUPANCY - COUNT FEMALES WITH OFFSPRING	AT LEAST 1 FAMILY UNIT IN 20 OF 24 BMU**	18 (1987-88)
MORTALITY - INVENTORY ALL	NTE 14 TOTAL PER YEAR KNOWN HUMAN-INDUCED OR (6) FEMALES OUTSIDE GNP	12(6) - 1986 9(6) - 1987 8(6) - 1988
HABITAT - MAINTAIN EFFECTIVENESS CONSERVATION STRATEGY PLAN	AS DEVELOPED, UTILIZE CUMULATIVE EFFECTS MODEL (CEM)	ONGOING; UTILIZE BEST DATA AVAILABLE

*COMPUTED AS A RUNNING THREE YEAR AVERAGE.
**COMPUTED AFTER THREE-YEARS OF CUMULATIVE REPORTS

GNP = Glacier National Park
NTE = not to exceed

BASIS OF OPINION

The distribution of grizzly bear observations for the period 1976 to 1986 in the South Fork Two Medicine River and North Badger Creek indicates year-round grizzly bear use (Appendix B). Spring range, alpine feeding areas and denning habitat have been identified in addition to suitable summer/fall habitat (Aune et al. 1987). The Fina project site and surrounding area is mapped as spring range which is also used during the summer and fall (Appendix C). The Chevron well site is mapped as summer/fall habitat and is located adjacent to potential denning habitat. The access route passes through spring, summer and fall habitat with approximately 0.75 miles going through potential denning habitat (Appendix C). All of the area influenced by the two projects occurs within grizzly bear management situation I habitat (Interagency Grizzly Bear Management Guidelines, 51 FR 42863).

Potential impacts to grizzlies from hydrocarbon exploration and development are discussed and summarized in the Grizzly Bear Compendium (National Wildlife Federation, 1987). Potential impacts may be categorized as follows:

1. Loss of habitat due to activities that adversely modify or destroy important habitat components;

2. Loss of habitat due to displacement;

3. Increased mortality risk; and

4. Cumulative impacts of all past and present federal, state and private actions.

Loss of Habitat due to Activities that Adversely Modify or Destroy Important Habitat Components

Construction of the access roads and drill pads are the activities most likely to adversely modify or destroy important habitat components for the grizzly bear. The Biological Assessment concludes that direct impacts to the habitat will be minimal. Between 25 to 38 acres of vegetation would be removed due to clearing for the access road and drill site for the Fina project and 68 acres for the Chevron project. Of the roaded access routes evaluated for the Fina site, route A2 (Table 4.2, Appendix D) had the least reduction in habitat units, a measure of habitat quality and quantity calculated using the cumulative effects model, East Rocky Mountain Front (Forest Service et. al, 1987). The road largely remains in forested components and avoids open habitat components high in forage values. The Fina well site is located in a timber stand of closed lodgepole, a vegetative component having low forage values. The proposed access route to the Chevron well site follows an existing road on the Blackfeet Indian Reservation to Palookaville over Whiterock Pass to the Badger Guard Station. Thus, by following the existing road, reconstruction of this portion of the access route should have little additional direct impacts to important habitat components. Approximately five miles of new road construction will be required from Badger Cabin to the well site. This new road passes largely through timbered components (lodgepole and spruce/fir). The habitat value within the zone of influence of this access route calculated using the cumulative effects model (CEM), is the lowest of all the roaded alternatives evaluated for the Chevron project (Table 4.3, Appendix D). The well site is located in a timber stand of open spruce/fir-whitebark pine, a vegetative component having medium to high forage values. Thus, the Service concurs with the conclusion of the Biological Assessment that the direct impacts due to adverse modification of important habitat will be minimal. The Service therefore concludes that impacts due to the physical alteration of habitat is not expected to significantly reduce the reproduction, numbers or distribution of the grizzly bear.

Loss of Habitat due to Displacement of Animals

Aune (1984) and Aune et al. (1982, 1983, 1984) studied the effects of drilling operations on the movements, home range and habitat use of grizzlies along the East Rocky Mountain Front. They compared the geometric activity centers of bears in consecutive pre- and post-disturbance years and found that grizzlies were not displaced from their seasonal ranges by drilling operations (Aune et al. 1983, 1984). Although seasonal geometric activity centers did shift from one year to the next, these shifts were attributed to food availability, reproductive status and age/sex class. Grizzlies did appear to be temporarily displaced from areas immediately around active drill sites. For most bears, a minimum impact zone of about 0.5 miles existed around active wells. This distance varied depending on the degree of habituation of individual bears and the cover and topography of the area. Grizzlies began to reuse the area around a drill site once human activity at the site tapered off (Aune et al. 1984). Increased road construction was considered the most serious impact of oil and gas development in the area (Aune and Stivers 1983, Aune et al. 1984). Other research studies have also confirmed the temporary displacement of bears along road corridors (National Wildlife Federation, 1987).

Harding and Nagy (1980) in studying grizzly bear responses to hydrocarbon exploration on Richards Island, Northwest Territories, Canada, concluded that although grizzlies did not avoid the general area of industrial activity, they did avoid the area within 0.6 miles of drill sites, camps, etc. Of 13 to 24 grizzlies in the area, only six ever entered the immediate area of industrial activity. They concluded that the grizzly population had apparently adapted to existing facilities. However, as new industrial activities were introduced to the island, the population might be jeopardized. Of greatest concern was the construction of new all-weather roads, disturbance of denning bears, marginal habitat loss and relocation of problem bears from construction camps.

Neither the Fina project nor Chevron project will directly impact denning habitat or interfere with denning activities. The zone-of-influence for the Fina and Chevron projects affects 0.8% and 4.0% of potential denning habitat in the BMU, respectively. Harding and Nagy (1980) found that grizzlies on Richards Island often denned successfully within the general area of hydrocarbon activity. Of 35 dens which they located, 28 were within the potential impact area, including several within one to four miles of active areas.

Information on displacement of grizzlies from the literature was incorporated into the CEM developed for the East Rocky Mountain Front and the model was run to evaluate the loss of habitat effectiveness on a seasonal basis due to the projects. Table 4.12 (Appendix D) shows for the exploration phase of each individual project (projects not conducted concurrently with one another) the reduction/gain in habitat effectiveness with and without the mitigation measures as compared to the existing situation for the Badger-Two Medicine Bear Management Unit (BMU). With the mitigation/coordination measures incorporated into the project design, the CEM indicates the following:

Table 2. Cumulative Effects Analysis Results

Reduction/Gain in Habitat Effectiveness (%) from Existing Situation

Project	Season	Reduction	Gain
Fina	Spring	--	7.8*
Fina	Summer	0.18	--
Fina	Fall	--	1.75
Chevron	Spring	--	7.95*
Chevron	Summer	0.16	--
Chevron	Fall	--	1.87

*Assumes restrictions on motorized use of trails (reference Project Description) are applied during the spring period.

Habitat effectiveness during the critical spring period is not reduced due to the spring seasonal restriction on the two projects and, in fact, can be improved from the existing situation if restrictions on motorized use of trails are also applied during this period. The restrictions on motorized use of trails during the project activity period compensates for what otherwise would be a loss in habitat effectiveness during the summer and fall but now results in a gain in habitat effectiveness from the existing situation during the fall and only a slight decline during the summer. Thus, no net loss of habitat due to displacement is expected in the BMU as a result of the exploratory projects.

Table 4.13 (Appendix D) shows for the exploration phase the reduction/gain in habitat effectiveness (with and without the mitigation measures) should the Fina project and Chevron project be conducted concurrently. With the mitigation/ coordination measures incorporated into the project design, the CEM indicates the following:

Table 3. Cumulative Effects Analysis Results

Reduction/Gain in Habitat Effectiveness (%) from Existing Situation

Season	Reduction	Gain
Spring	--	7.9*
Summer	0.86	--
Fall	--	0.92

*Assumes restrictions on motorized use of trails (reference Project Description) are applied during the spring period.

These results indicate that with implementation of the compensation measures the two exploratory projects could be conducted concurrently without sustaining a net loss of habitat due to displacement. Approximately 9 airline miles separate the two proposed well sites providing adequate habitat that is free of motorized activities that bears can displace to. A 9 mile spacing between seismic lines that were run concurrently was required for geophysical exploration on the Rocky Mountain Front. Aune et al. (In Prep.) observed that a 9 mile spacing restriction for seismic programs provided sufficient activity-free zones for bear to move into and forage freely. They observed grizzlies and radio monitored bears within these activity-free zones and detected little abnormal activity patterns.

Should either or both of the wells be producers, production facilities would be offsite as outlined in the project description and the well heads remote monitored after the first year or two of production. This technology greatly reduces the need for daily visits to the well site, thereby minimizing disturbance to bears and other wildlife. The probability that either of the two wells will lead to production is about 2.27% (draft EIS, Appendix L-7). Table 4.9 (Appendix D) shows the reduction in habitat effectiveness should production from both wells occur. The CEM indicates that during production there is less than 1% decrease in habitat effectiveness for all seasons from the existing situation (Table 4.9). This is attributed to: (1) seasonal restrictions on when construction and heavy maintenance of wells may occur, (2) restricting traffic on the access roads to that presently allowed under the Forest Travel Plan, and (3) low levels of visitation to the well sites due to off site location of production facilities and remote monitoring of well heads. Therefore, if seasonal operating periods and road restrictions are adhered to, and remote monitoring required and enforced, impacts to grizzly bear from displacement during production is not expected to affect the numbers, reproduction or distribution of the grizzly bear at a level that would jeopardize the continued existence of the species.

Increased Mortality Risk

The scientific literature indicates that the greatest impact to grizzly bears from oil and gas activities results from increased human access into bear habitat thereby, increasing mortality risk to bears. Our no jeopardy conclusion is dependent, in part, on the following factors:

1. New access roads will be obliterated and revegetated in the case of a dry well and in the case of a producible well, the access routes regulated so that the only traffic that occurs outside the current restrictions of the Forest Travel Plan will be that associated with the projects;

2. A no firearms policy for industry employees while on duty;

3. The requirement to incinerate garbage daily or store in bear proof containers and to remove to local land fill dumps on a daily basis;

4. No work camps at the drill site. Work camps would introduce attractants (cooking odors, foods, garbage accumulation, etc.), increasing the possibility of human/bear conflicts;

5. The Forest Service legal authority under 36 CFR 261.50 to close access roads and enforce such closures on the Blackfeet Indian ceded strip (reference June 30, 1986 letter from U.S. Attorney to Attorney in Charge, Office of General Council, Appendix E); and

6. The Cooperative Law Enforcement Agreement agreed to by the U.S. Fish and Wildlife Service, Montana Department of Fish, Wildlife and Parks, Bureau of Indian Affairs, Bureau of Land Management, Blackfeet Tribe and U.S. Forest Service to reduce mortality risks to bears as a result of the Fina project (Appendix F).

The value of enforcing a firearms restriction is demonstrated by the percent change in the mortality risk index calculated by the CEM (Tables 4.10 and 4.11, Appendix D). By implementing a firearms restriction, the morality risk index is reduced by 60 to 75% within the zones of influence of the access roads and drill sites of the projects. Mortality risk throughout the entire BMU remains similar or slightly lower than that existing under present conditions.

During the period 1977 through 1988, seven grizzly bears in the Badger-Two Medicine BMU have been documented as lost to the population from all causes, an average annual loss of .58 bear/year (Aune and Brannon 1987; U.S. Fish and Wildlife Service Files). The Montana Department of Fish, Wildlife and Parks, in developing its proposed levels of hunting, reviewed data from several studies and determined that an average annual human-induced mortality of 6% of the total population could be sustained and still experience a general increase in numbers (Montana Department of Fish, Wildlife and Parks 1986). Applying this 6% figure to the population estimate of 11.6 to 17.5 bears in the BMU yields 0.69 to 1.05 bears that theoretically could be taken per year without experiencing a population decline. Unknown, unreported illegal mortality for the NCDE population is estimated at 2% (Revision of Special Regulations for the Grizzly Bear, Final Rule; 51 FR 33753). Adjusting the theoretical acceptable mortality level to account for unknown illegal mortality yields 0.46 to 0.70 bears that could be taken per year (known mortality) without experiencing a population decline (11.6 X .02 = .23; 17.5 X .02 = .35; .69 - .23 = .46 and 1.05 - .35 = .70).

The present mortality level (.58 bear/year) within the BMU falls within the acceptable theoretical mortality limits (0.46 - 0.70 bears/year) for the estimated grizzly bear population within the BMU. Based on the assumptions that: (1) human traffic will be restricted to that presently allowed under the Forest Travel Plan, (2) road restrictions are legal and will be enforced, and (3) a no firearms policy for company employees will be in effect, mortality risks theoretically can be held to levels that exist at the present time (Table 4.10, Appendix D). In reality, the Service believes this will be difficult to achieve because new roads, even though closed to motorized use, will permit much easier access by foot or horseback into previously unroaded areas. Opportunities for the illegal taking of grizzlies by poaching or through mistaken identity during black bear hunting seasons would be enhanced. Should mortality increase, the extent of take would have to increase by 17% before exceeding the theoretical acceptable mortality level (.70 - .58 = .12; .12/.70 = 17%). The Service has no available information to predict that the potential increase in mortality as a result of the proposed exploration (and potential development) would exceed acceptable mortality levels. Any known mortality that occurs will be counted against the quota of 14 bears or 6 females (whichever occurs first) established to regulate hunting seasons for the grizzly bear in the Northern Continental Divide Ecosystem (50 CFR Part 17). We thus conclude that mortality risk is, and with the incorporation of the above factors 1-6, will continue to be sufficiently managed to preclude jeopardy to the species.

Impacts of Past and Present Federal, State and Private Actions

The CEM was used to evaluate the impacts of all past and present Federal, State and private actions in the analysis area (Badger-Two Medicine BMU). The environmental baseline included all human activities such as roads, trails, recreational activities (dispersed and concentrated), campgrounds, administrative sites, homesites, livestock grazing, etc. Human activities were mapped and digitized according to procedures outlined in the Cumulative Effects Analysis Process (Forest Service et. al, 1987). There were no proposed Federal projects in the action area that had already undergone formal consultation or State and private actions contemporaneous with this consultation that were required to be factored into the environmental baseline. The Fina project underwent formal consultation and received a no jeopardy opinion in 1985, but is now the subject of Section 7 review in this consultation. The CEM was then run to establish the level of habitat effectiveness for the existing situation (environmental baseline) and then runs were made to evaluate the projects individually and collectively, measuring them against the existing situation.

Habitat units (habitat quality and quantity) calculated by the CEM provides a means of quantifying the loss or gain in habitat due to human activities and are used in calculating habitat effectiveness. The habitat unit is an expression of available seasonal habitat in units that can be measured, duplicated in other areas that have been habitat component mapped, and then used for comparison purposes. Thus, habitat units may be used to quantify habitat quality in a BMU or within a zone of influence associated, for example, with a road corridor.

Habitat units were calculated (Table 4) by season for the: (1) Badger-Two Medicine BMU in the absence of all human activities (optimum habitat), (2) existing situation (environmental baseline), and (3) the environmental baseline with the two projects being conducted concurrently (with and without mitigation measures). The number of habitat units in the absence of all human activity represents the resource cushion that grizzly bears have available to meet their biological requirements. As human activities are superimposed over bear habitat, habitat units are either permanently or temporarily made unavailable to bear use, thus reducing the resource cushion. The CEM calculates the loss or gain of habitat units as human activities are added to or removed from bear habitat. Theoretically, the resource cushion could be reduced to a point where the grizzly bear population could no longer meet its biological requirements, thereby jeopardizing its existence.

To date, no process for establishing thresholds has been completed on grizzly bear cumulative effects models to define and validate threshold levels required to meet recovery targets. The cumulative effects analysis process, developed on the Kootenai National Forest (Christensen and Madel 1982) has operated under a philosophy of maintaining a minimum of 70% freely available space (habitat effectiveness) throughout all BMUs on the Forest. Managers commonly use threshold habitat effectiveness levels between 70-80% for non-listed species such as elk.

Table 4. Seasonal Habitat Units for the Badger-Two Medicine BMU (no human activity), Environmental Baseline (existing situation) and Proposed Projects (Combined Alternative 2-A2)

	OH	E	P_1	P_2
Spring				
Habitat Units (HU)	104,879	85,890	79,979	94,222
Habitat Units Reduced		18,989	24,900	10,657
% HU Reduced		18	24	10
% HU Remaining		82	76	90
Summer				
Habitat Units	224,863	197,160	192,057	196,132
Habitat Units Reduced		27,703	32,806	28,731
% HU Reduced		12	15	13
% HU Remaining		88	85	87
Fall				
Habitat Units	353,559	315,748	310,780	316,924
Habitat Units Reduced		37,811	42,779	36,635
% HU Reduced		11	12	10
% HU Remaining		89	88	90

OH = Optimum habitat (absence of all human activities)

E = Environmental Baseline (Existing Situation)

P_1 = Environmental Baseline + proposed projects (without mitigation)

P_2 = Environmental Baseline + proposed projects (with mitigation)

Table 4 shows the resource cushion (habitat units) as it has already been reduced by the environmental baseline (existing situation) and then by the proposed projects (both projects being conducted concurrently). The data indicate that the resource cushion remains at 90, 87, and 90% of its optimum for the spring, summer and fall seasons, respectively. The positive effects of the mitigation measures applied to the projects are clearly shown by comparing P_1 and P_2. The relatively high resource cushion remaining in the environmental baseline is reflective of the low level of human activity occurring in the Badger-Two Medicine BMU due largely to the Badger-Two Medicine Roadless Area (102,100 acres) within its boundaries.

The analysis presented in the previous section of this opinion on mortality risk demonstrated that the level of mortality occurring from all causes under the on-going level and kinds of human activities falls within theoretical acceptable limits for the grizzly bear population in the analysis area. Thus, the Service concludes that the cumulative impacts of the Fina and Chevron projects, along with other past and on-going activities, are not likely to affect the numbers, reproduction or distribution of the grizzly bear at a level that is likely to jeopardize the species.

Three Well Field Development

An oil and gas activity analysis prepared by the Lewis and Clark National Forest (draft EIS, Appendix L) suggests that there is the potential for two oil and/or gas fields, the Two Medicine Hypothetical Field (Fina project site) and Badger Creek Hypothetical Field (Chevron project site) (Map 4.1, Appendix A). The probability of initial discovery for each well ranges from 2.27% to 15.9%. The probability of field development of a significant class field from the initial new field wildcat well is approximately .42% for oil and .46% for gas. Two additional wells (total of three wells per each structure) is projected.

The oil and gas analysis indicates that it is highly speculative to address if, when, and how much such future development activity may occur, and there is less certainty in defining how and where such activity will evolve, if it occurs at all. Should the initial well on each lease be a producer, a significant level of activity would occur for a period of years (5-10) following drilling of the first well. The draft EIS and Biological Assessment, however, do not speculate where additional wells may be drilled or attempt to quantify their impacts. Based upon the information presented for the proposed exploration and development on the Fina and Chevron APDs and the estimated size of the two hypothetical fields, the Service assumes the following:

1) Road construction and drilling for each additional well site will take two years per well (total of seven years for a three well field for Fina and eight years for a three well field for the Chevron project);

2) One additional mile of road construction per well (2 additional miles of new road for the Fina project and for the Chevron project); and

3) Abandonment and reclamation would occur at some time beyond 10 years (draft EIS, page IV-183).

The same operating periods and mitigation measures used to coordinate activities associated with the Fina APD and Chevron APD would be applied throughout field development and production. Thus, the level of impact discussed earlier in this opinion for exploration and production would remain similar for field development but extended in time. Table 3 shows a reduction in habitat effectiveness of .86 and .92 for the summer and fall seasons, respectively, for the Fina and Chevron wells being conducted simultaneously. Assuming that: (1) additional wells and their associated new roads are drilled and constructed in areas having approximately the same habitat values as those found on the Fina and Chevron APDs, (2) no more than one well at a time is drilled on a lease (no more than two wells drilled concurrently in any one year), and (3) that the main access routes constructed for the initial wells are also used to access the lease areas, it can be expected that a 1% decrease in habitat effectiveness from the existing situation would occur each year for a period of seven to eight years. This level of impact, however, is contingent upon the mitigation measures being consistently applied.

The cumulative effects analysis for two producing wells, with mitigation applied, showed a 1% decrease in habitat effectiveness in all seasons. Therefore, with six producing wells, the habitat effectiveness within the BMU could be expected to decline by approximately 3%.

While this level of reduction in habitat effectiveness may not appear significant to the grizzly bear, the activities responsible for the reduction are creating additional access into previously unroaded bear habitat. The Service is thus greatly concerned with mortality risk management. Aune et al. (In Prep.) stated that "In our study area (Rocky Mountain Front), survival rates appeared adequate to maintain the population. Increasing mortality further could result in a declining population. However, high survival rates and productivity of the adult females may compensate for increased mortality in the male segment of the population. Our no jeopardy conclusion is largely based on the six factors (factors designed to minimize mortality risk) outlined in the mortality section of this opinion being fully implemented and enforced.

INCIDENTAL TAKE

Section 9 of the Endangered Species Act, as amended, prohibits any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species without a special exemption. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered taking within the bounds of the Act provided that such taking is in compliance with the incidental take statement.

The Service does not anticipate that the proposed Fina and Chevron projects will result in any incidental take of grizzly bears. Accordingly, no incidental take is authorized. Should any take occur, the Forest Service must reinitiate formal consultation with the Service and provide the circumstances surrounding the take.

Our conclusion that no incidental take is expected is based on the following:

> As defined by the Act, the term "take" means to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct" 10 U.S.C. 1532(19). Further, "harm" is defined to include "an act....[that] may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavior patterns including breeding, feeding, or sheltering" (50 CFR 17.3).
>
> "Taking" therefore is not expected to result from the projects due to:
>
> 1. A spring seasonal restriction on project activities during the critical spring period;
>
> 2. No direct or indirect impacts to denning bears;

3. Firearms are prohibited;

4. Adequate habitat that bears can displace to that is absent of other motorized activities is available;

5. No construction camps will be permitted on site; and

6. Roads will be controlled so that the only traffic that occurs outside the restrictions of the Forest Travel Plan will be that associated with the projects.

The illegal killing of grizzly bears, be it through poaching or "mistaken identity", is a violation of both State and Federal law and will be prosecuted. All other taking of grizzly bears must be done in compliance with the 50 CFR S17.40(b) and applicable State laws.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Endangered Species Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. The term conservation recommendations has been defined as suggestions of the Service regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information.

The Rocky Mountain Front guidelines from the Interagency Rocky Mountain Front Wildlife Monitoring/Evaluation program were an important component in the design and coordination of the Chevron and Fina projects. Monitoring the effectiveness of the Guidelines and any resultant impacts has been identified as an important element of the East Front Wildlife Monitoring/Evaluation program. The Guidelines recommend that proposed projects include as part of the cost of the project, funding to help assist in validating these Guidelines. The Service recommends that the U.S. Forest Service actively pursue with Chevron and Fina a monitoring program to test the effectiveness of the Guidelines during their exploratory projects. The determination of whether or not the Guidelines are meeting their intended objectives during the exploratory phase of these projects will be extremely valuable in designing activities associated with the next step and assessing their impacts.

CONCLUSION

This concludes formal consultation on this action. Reinitiation of formal consultation is required if the amount or extent of incidental take is exceeded, if new information reveals effects of the action that may impact listed species or critical habitat in a manner or to an extent not considered in this opinion, if the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion, or if a new species is listed or critical habitat designated that may be affected by the action.

Your cooperation and assistance in meeting our joint responsibilities under the Endangered Species Act are appreciated.

Sincerely,

Kemper M. McMaster

Kemper M. McMaster
Acting State Supervisor
Montana State Office

DRHARMS/clh

cc: 7757
Forest Supervisor, Lewis and Clark NF, Great Falls, MT
Director, OES, FWS, Washington, D.C.
ARD, FWE-61120, RO, FWS, Denver, CO
Grizzly Bear Recovery Coordinator, FWS, Missoula, MT
District Manager, BLM, Lewistown, MT
Area Manager, BLM, Great Falls, MT

"Take Pride in America"

References Cited

Aune, K. 1989. Preliminary draft Final Report, East Front Grizzly Studies. Mont. Dept. Fish, Wildl. and Parks, Helena. (In Preparation).

______, and B. Brannon. 1987. East Front Grizzly Studies. Mont. Dept. Fish, Wildl. and Parks, Helena. 195pp.

______, T. Stivers and M. Madel. 1984. Rocky Mountain Front Grizzly Bear Monitoring and Investigation. Mont. Dept. Fish, Wildl. and Parks, Helena. 239pp.

______, and T. Stivers. 1983. Rocky Mountain Front Grizzly Bear Monitoring and Investigation. Mont. Dept. Fish, Wildl. and Parks, Helena. 180pp.

______, and T. Stivers, 1982. Rocky Mountain Front Grizzly Bear Monitoring and Investigation. Mont. Dept. Fish, Wildl. and Parks, Helena. 143pp.

Christensen, A. and M. Madel. 1982. Cumulative Effects Analysis Process, Kootenai National Forest. 38pp.

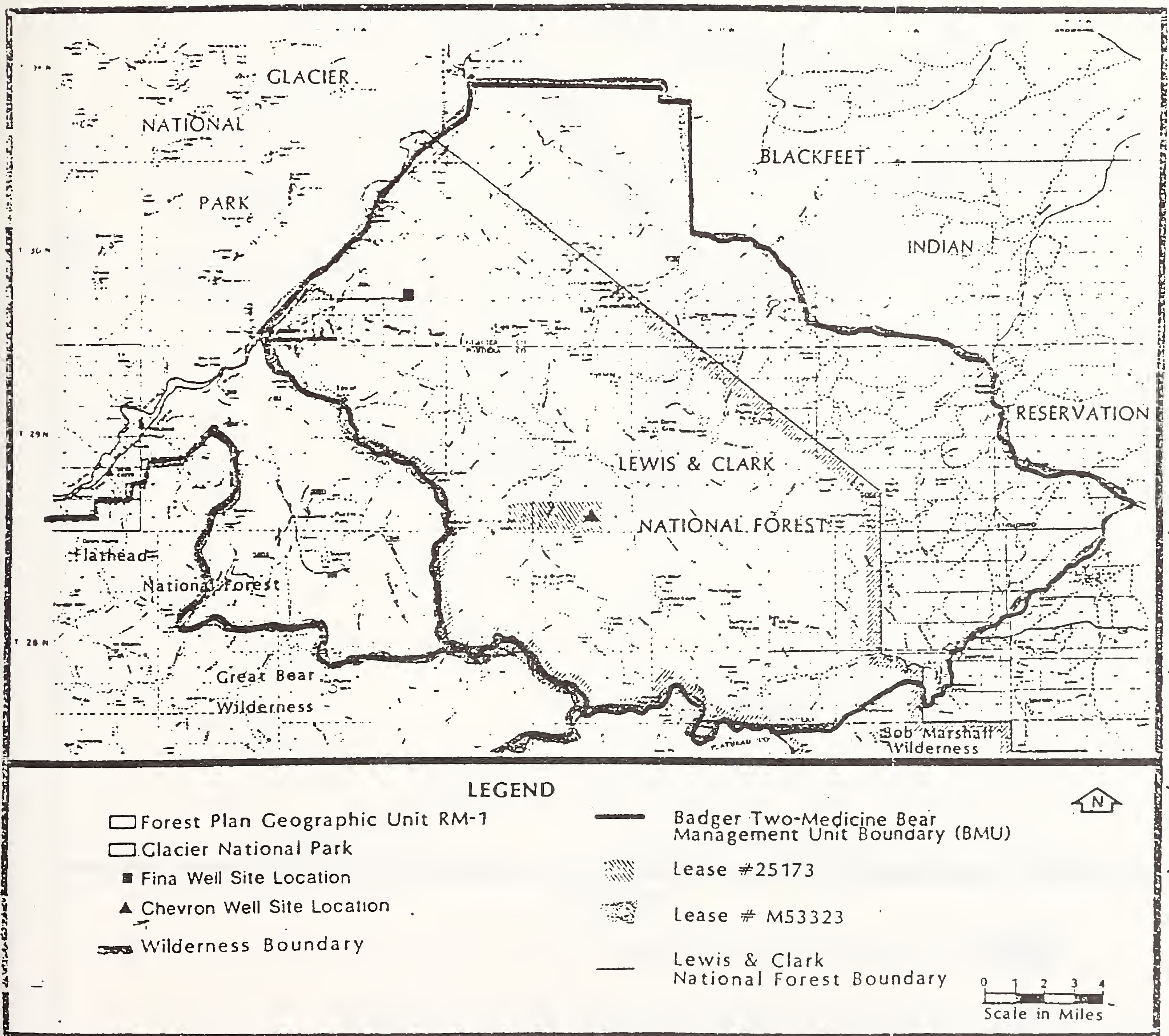
Harding, L. and J.A. Nagy. 1980. Response of grizzly bears to hydrocarbon exploration on Richards Island, Northwest Territories, Canada. Int. Conf. Bear Res. and Manage. 4:277-280.

Forest Service, Montana Department of Fish, Wildlife and Parks, Bureau of Land Management, and U.S. Fish and Wildlife Service. 1987. Cumulative Effects Analysis Process for the Rocky Mountain Front, Northern Continental Divide Grizzly Bear Ecosystem. 41pp.

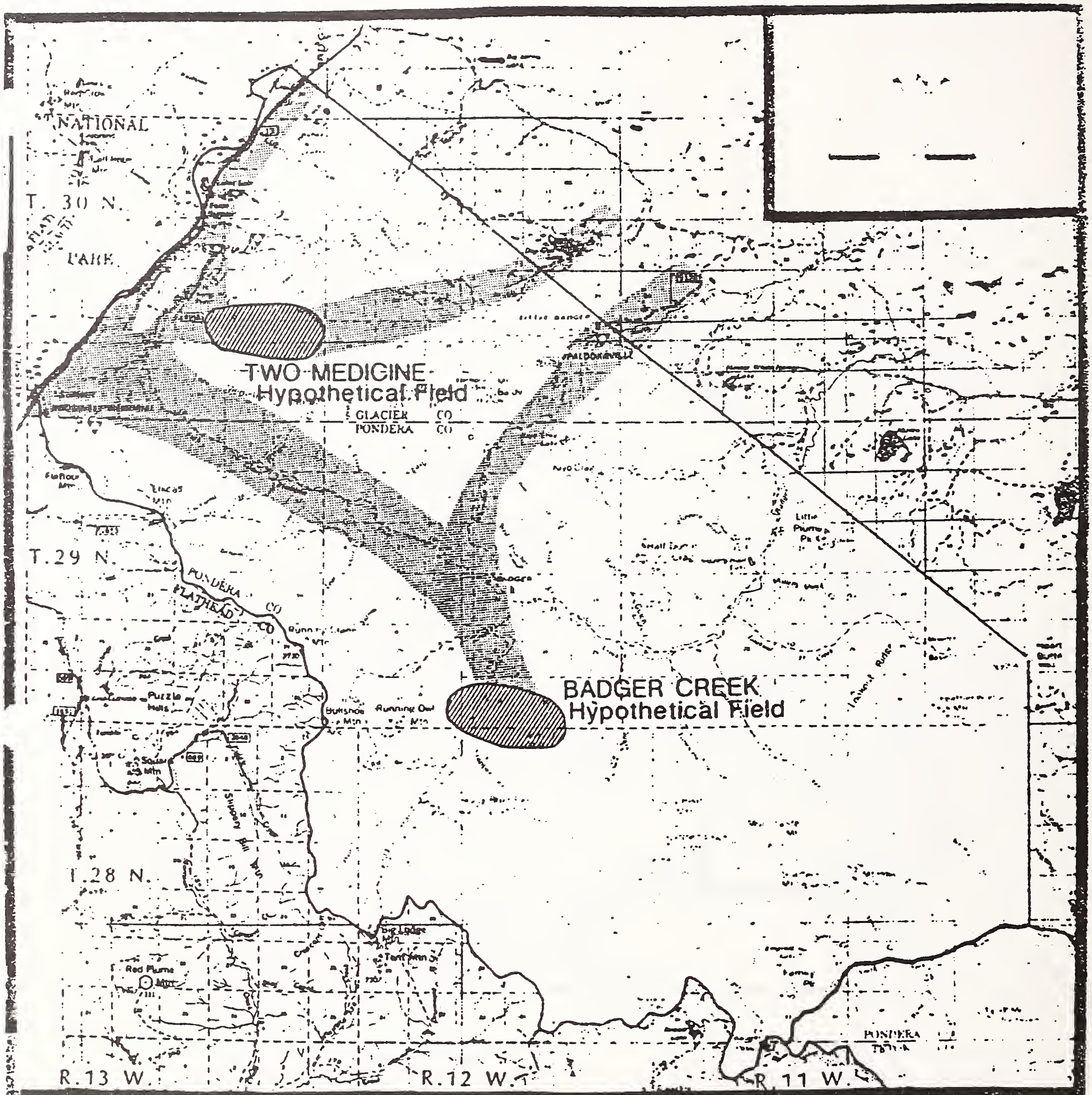
Montana Department of Fish, Wildlife and Parks. 1986. Final Programmatic Environmental Impact Statement. The Grizzly Bear in Northwestern Montana. Helena. 296pp.

National Wildlife Federation. 1987. Grizzly Bear Compendium. 540pp.

APPENDIX A



MAP 1.2 VICINITY MAP



LEGEND

▨ Potential Field Locations

░ Potential Oil and Gas Development Corridors

MAP 4.1 POTENTIAL DEVELOPMENT

APPENDIX B

(Source: Aune, K., and B. Brannon. 1987. East Front Grizzly Studies. Montana Department of Fish, Wildlife and Parks, Helena. 195pp.)

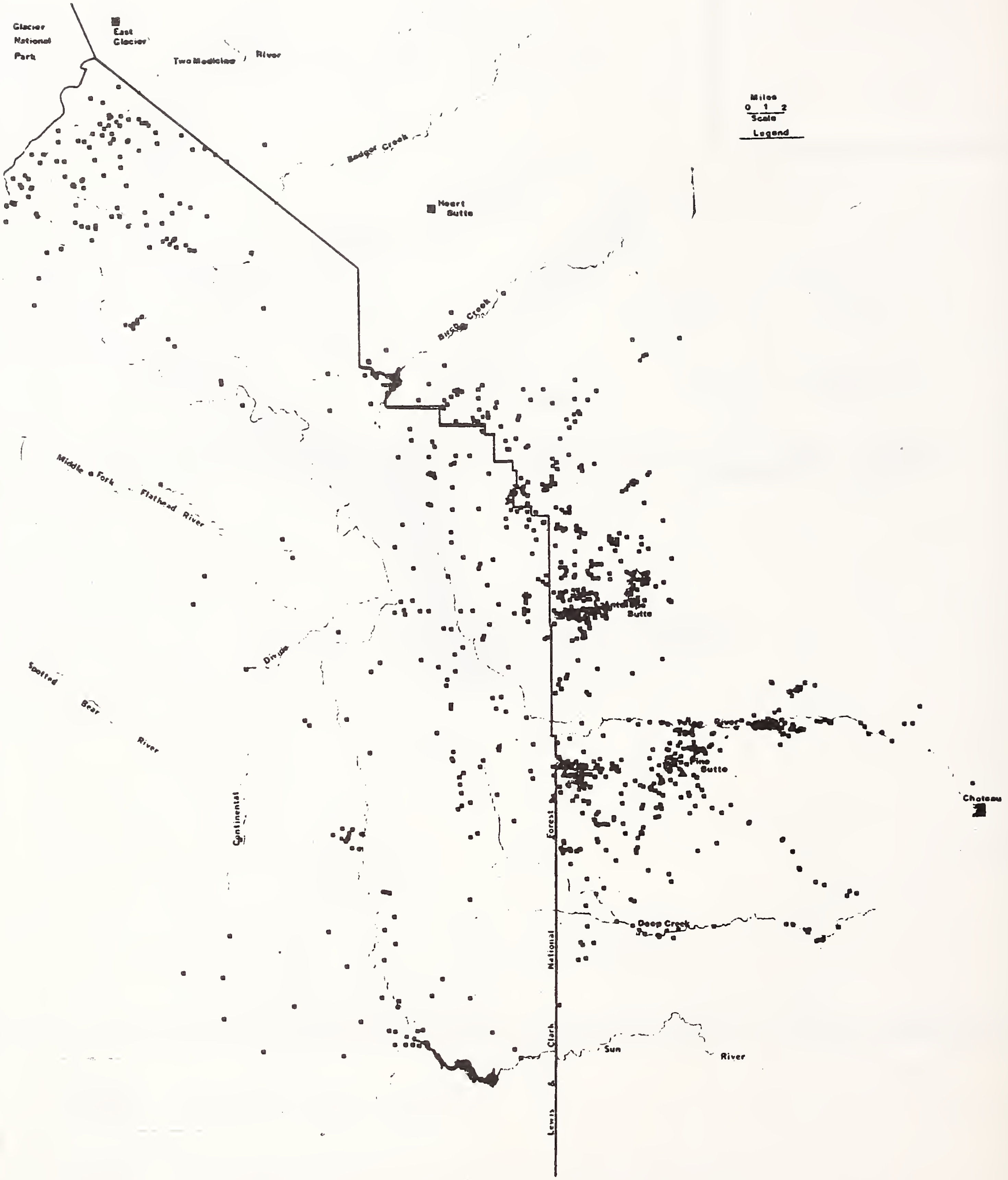


Figure 5. Distribution of 999 grizzly bear observations collected during spring, 1976-86, north of the Sun River.

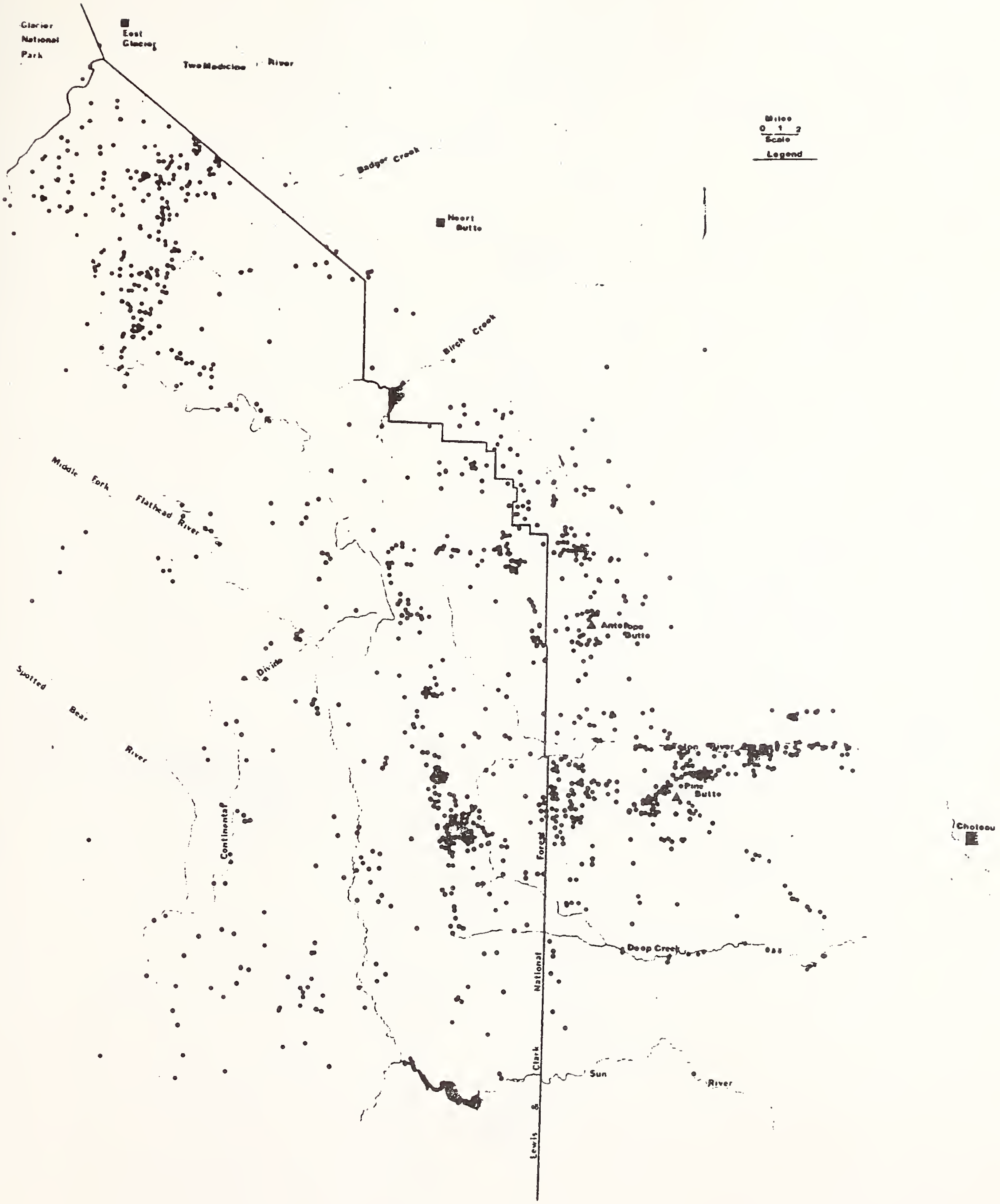


Figure 6. Distribution of 1,273 grizzly bear observations collected during summer, 1976-86, north of the Sun River.

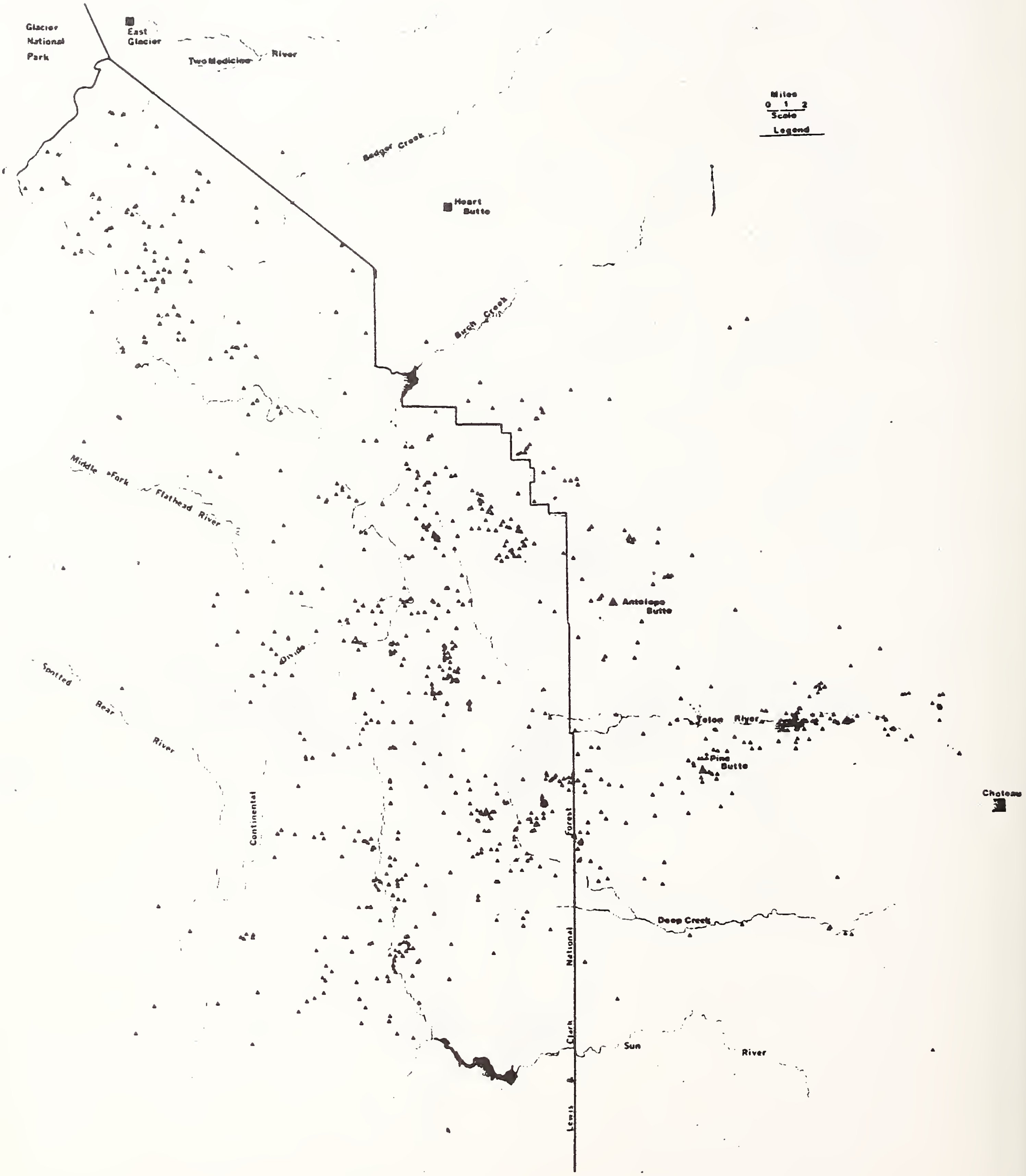


Figure 7. Distribution of 898 grizzly bear observations collected during fall, 1976-86, north of the Sun River.

APPENDIX C

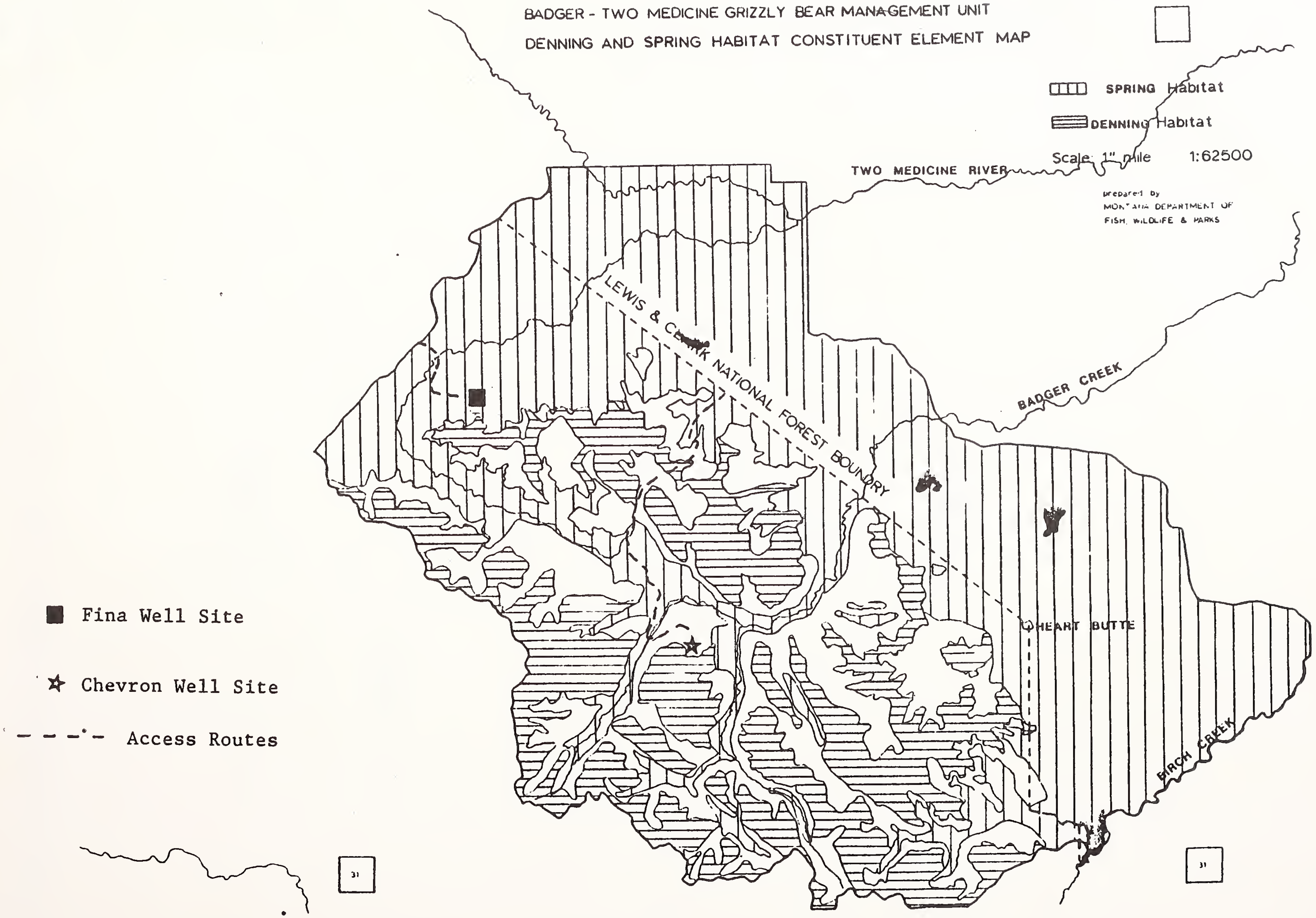


Figure 29. Constituent element map, 1986.

Source: Aune, K. and B. Brannon. 1987. East Front Grizzly Studies. Montana Dept. of Fish, Wildlife and Parks, Helena. 195pp.

APPENDIX D

(Source of Tables: Biological Evaluation for Chevron/Fina Gas Exploration)

TABLE 4.2

FINA ALTERNATIVES - EXPLORATION

OPERATING WINDOW: 5.0 Month	A2	B2	C2	D1	F8	F9	E
-Cumulative Effects Model Outputs (Grizzly bear) —-spring habitat effectiveness	18.08%	18.08%		17.74%		18.08%	18.12%
—-spring mortality risk	.047	.047		.046		.047	.047
—-reduced habitat units	0000	0000		0000		0000	
—-summer habitat effectiveness	24.83%	25.17%		25.30%		24.33%	23.09%
—-summer mortality risk	.113	.114		.113		.110	.109
—-reduced habitat units	2036	2445		3019		1440	
—-fall habitat effectiveness	31.48%	31.84%		32.01%		30.71%	29.38%
—-fall mortality risk	.207	.208		.207		.203	.202
—-reduced habitat units	2726	3195		3890		1742	
—-ave. habitat effectiveness	24.80%	25.03%		25.02%		24.37%	23.53%
-Difference between ave HE & Existing Situation	1.3%	1.5%		1.5%		0.8%	0.0%

A2 - Preferred Alternative
E - Existing Situation

TABLE 4.3

CHEVRON ALTERNATIVES - EXPLORATION

OPERATING WINDOW: Yearlong	2	6A	6B	7A	7B	8	9	12
-Cumulative Effects, Model Outputs (Grizzly bear) —spring habitat effectiveness	22.04%	22.34%	22.65%	23.30%	23.14%	19.12%	20.06%	18.12%
—spring mortality risk	.054	.056	.056	.058	.057	.048	.048	.047
—habitat units in ZI	7690		6708		7426		3424	
—reduced habitat units	5487		4799		5303		2608	
—shv for ZI	.487		.507		.519		.459	
—summer habitat effectiveness	25.73%	27.57%	27.92%	28.46%	28.31%	24.20%	24.44%	23.09%
—summer mortality risk	.112	.120	.120	.122	.121	.111	.110	.109
—habitat units in ZI	8494		8027		8689		3674	
—reduced habitat units	6077		5750		6214		2826	
—shv for ZI	.538		.606		.607		.492	
—fall habitat effectiveness	31.51%	33.79%	34.12%	34.68%	34.50%	30.48%	30.38%	29.38%
—fall mortality risk	.204	.214	.214	.216	.215	.204	.203	.202
—habitat units in ZI	8975		8557		9253		3795	
—reduced habitat units	6420		6128		6614		2914	
—shv for ZI	.569		.646		.647		.569	
—total acres in ZI	15780		13234		14310		7460	
—ave. habitat effectiveness	26.43%	27.90%	28.23%	28.81%	28.65%	24.60%	24.96%	23.53%
-Difference between ave HE & existing situation	2.9%	4.4%	4.7%	5.3%	5.1%	1.1%	1.4%	0.0%

2 - Preferred Alternative
12 - Existing Situation

TABLE 4.9

CHEVRON ALTERNATIVES - PRODUCTION

OPERATING WINDOW: Production	WHITEROCK-A2	WHITEROCK-D1	EXISTING SIT
-Cumulative Effects, Model Outputs (Grizzly bear) —spring habitat effectiveness	18.76%	18.77%	18.12%
—spring mortality risk	.052	.052	.047
—habitat units in ZI	8213	12572	
—reduced habitat units	1787	2213	
—summer habitat effectiveness	23.67%	23.95%	23.09%
—summer mortality risk	.111	.112	.109
—habitat units in ZI	9181	13828	
—reduced habitat units	3144	4530	
—fall habitat effectiveness	29.92%	30.26%	29.38%
—fall mortality risk	.204	.206	.202
—habitat units in ZI	9828	14842	
—reduced habitat units	3701	5469	
—total acres in ZI	15610	25440	
—ave. habitat effectiveness	24.12%	24.33%	23.53%
-Difference between ave HE & existing situation	0.6%	0.8%	0.0%

TABLE 4.10

MRI FOR ENTIRE BMU FOR CHEV/FINA - EXPLORATION

OPERATING WINDOW: 5MO/8.5MO	A2 W/A	A2 WO/A	EXIST	2 W/A	2 WO/A	EXIST
-Cumulative Effects Model Outputs (Grizzly bear) —spring mortality risk	.047	.047	.047	.046	.046	.047
—summer mortality risk	.113	.111	.109	.111	.108	.109
—fall mortality risk	.207	.204	.202	.204	.199	.202

TABLE 4.11

MRI FOR ZONE OF INFLUENCE FOR CHEV/FINA - EXPLORATION

OPERATING WINDOW: 5MO/8.5MO	A2 W/A	A2 WO/A	%CHANGE	2 W/A	2 WO/A	%CHANGE
-Cumulative Effects Model Outputs (Grizzly bear) —spring mortality risk	.000	.000	0000	.000	.000	0000
—summer mortality risk	.004	.001	75%	.006	.002	67%
—fall mortality risk	.005	.002	60%	.008	.003	62%

TABLE 4.12

COMPARISON OF PREFERRED ALTERNATIVE W/ MITIGATION WO/ MITIGATION-EXPLORATION

OPERATING WINDOW: 5MO/8.5MO	A2 W/MIT	A2WO/MI	EXIST	2 W/MIT	2WO/MIT	EXIST
-Cumulative Effects Model Outputs (Grizzly bear) ——spring habitat effectiveness	10.29%	18.08%	18.12%	10.17%	17.51%	18.12%
——spring mortality risk	.047	.047	.047	.046	.046	.047
——reduced habitat units	158	992		319	786	
——summer habitat effectiveness	23.27%	24.83%	23.09%	23.25%	24.98%	23.09%
——summer mortality risk	.107	.113	.109	.102	.111	.109
——reduced habitat units	2240	3447		5512	7259	
——fall habitat effectiveness	27.63%	31.48%	29.38%	27.51%	31.47%	29.38%
——fall mortality risk	.198	.207	.202	.193	.204	.202
——reduced habitat units	2954	4544		6728	8849	

TABLE 4.13

COMBINED ALTERNATIVE W/MITIGATION WO/MITIGATION - EXPLORATION

OPERATING WINDOW: Fina-5month, Chevron-8.5month	2_A2 WO/MIT	2_A2 W/MIT	12_E
-Cumulative Effects, Model Outputs (Grizzly bear) ——spring habitat effectiveness	18.12%	10.17%	18.12%
——spring mortality risk	.047	.046	.047
——summer habitat effectiveness	26.68%	23.95%	23.09%
——summer mortality risk	.114	.098	.109
——fall habitat effectiveness	33.59%	28.46%	29.38%
——fall mortality risk	.209	.188	.202

APPENDIX E

U.S. Department of Justice

United States Attorney
District of Montana

ADDRESS REPLY TO
UNITED STATES ATTORNEY
AND REFER TO
INITIALS AND NUMBER

Post Office Box 1478
Billings, Montana 59103

406/657-6101
FTS/585-6101

June 30, 1986

Lawrence M. Jakub
Attorney in Charge
Office of General Counsel
P.O. Box 7996
Missoula, Montana 59807

Re: Blackfeet Access on Ceded Strip

Dear Larry:

Reference your letter dated June 20, 1986. I have reviewed the copy of Field Solicitor's opinion regarding Blackfeet access on the Ceded Strip as well as the other documents which your furnished to assist in my decision in answering will the office of the U.S. Attorney prosecute a Blackfeet Tribal member cited in violation of Forest Service road closure.

The answer is yes. We will prosecute a Blackfeet Tribal member or Indian person who violates the Forest Service road closure as it pertains to and is limited to vehicular traffic on the closed project road.

This opinion certainly would not interfere with the Tribe's reserved rights which were existing before the special use road was built, nor does it appear that the road in any way would preclude the Tribe from normal access and priveleges. My decision is, of course, related to the enforcement of the specific violation of driving vehicles on the Forest Service road in contradiction to the road closure and restrictions as established by the U.S. Forest Service orders.

Sincerely,

Pete Dunbar

PETE DUNBAR
United States Attorney

PD:mah

cc: Ken Pitt
Office of General Counsel

APPENDIX F

ROCKY MOUNTAIN RANGER DISTRICT

AMERICAN PETROFINA

HALL CREEK APD

LAW ENFORCEMENT PLAN

Dale Gorman

U.S. FOREST SERVICE FOREST SUPERVISOR

Nancy J Cotner

BUREAU OF LAND MANAGEMENT AREA MANAGER

MONTANA DEPT. OF FISH, WILDLIFE & PARKS REGIONAL DIRECTOR

Joel Scrafford SRA

U.S. FISH & WILDLIFE SERVICE SPECIAL AGENT IN CHARGE

Daniel T

BUREAU OF INDIAN AFFAIRS acting SUPERINTENDENT

BLACKFEET TRIBE CHAIRMAN, BLACKFEET TRIBAL BUSINESS COUNCIL

Glen O'Neill

NATIONAL PARK SERVICE for PARK SUPERINTENDENT

I. INTRODUCTION

American Petrofina Company of Texas filed on November 18, 1983, with the Great Falls Resource Area Office of the Bureau of Land Management (BLM), an application for a Permit to Drill (APD) on its Federal Lease #M53323, in Glacier County, Montana. The lease tract and proposed well site are located on the Lewis and Clark National Forest, Rocky Mountain Ranger District (Sec. 26, T30N, R13W).

In summary, the project as proposed entailed drilling an exploratory well to test and evaluate oil and gas potential on a portion of the lease. As proposed, the project would require the construction of an access road to the well site. The proposed access road would be 14 feet wide with maximum grades of 6% and would be about 6 miles in length.

The site of Petrofina's proposed well lies 9 miles southwest of the community of East Glacier Park, Montana.

On February 1, 1985, the Great Falls Area Manager, Bureau of Land Management (BLM) approved the application for Permit to Drill (APD).

A number of organizations and individuals filed notices of appeal from BLM's decision. By order dated April 10, 1985, the Interior Board of Land Appeals suspended the APD and granted expedited consideration.

On August 9, 1985, the Interior Board of Land Appeals remanded the decision to approve American Petrofina's Application for Permit to Drill (IBLA 85-445). One of the points listed in the August 9, 1985 opinion involved the absence of an agreement among agencies that have wildlife law enforcement responsibilities.

In the APD, American Petrofina has not proposed any production activities. The APD would allow the company to test the well for production capacity and complete the well. These activities are authorized for 90 days following discovery. Any production or activities in addition to those necessary for testing and completion must obtain further approval in advance from the BLM. Production plans would be outlined in a Sundry Notice.

The Law Enforcement Plan was designed for the duration of the project proposal. However, certain aspects of the plan will be implemented independent of American Petrofina's APD.

The plan would be revised in accordance to any additional activities proposed in a Sundry Notice.

II. LAW ENFORCEMENT PLAN OBJECTIVES

The major objective of the American Petrofina Hall Creek APD Law Enforcement Plan is prevention.

Preventative measures will include education, detection, and investigation of violations of laws and regulations in cooperation with all Federal and State law enforcement agencies with jurisdictional wildlife law enforcement responsibilities on National Forest lands and/or adjacent lands.

III. LAW ENFORCEMENT PROBLEMS AND ACTION PLANS

A. Problem Statement

As identified in the environmental analysis conducted for the American Petrofina Application for Permit to Drill, a primary cause of grizzly bear mortality was illegal and uncontrolled hunting. It was determined that an acceptable and necessary mitigating measure would be the implementation of an active inter-agency law enforcement program involving the various Federal and State agencies. The Forest Service (Rocky Mountain Ranger District) will be the lead agency in this combined effort.

Investigation of other fish and wildlife violations observed, suspected, or reported, will be investigated by enforcement personnel with the appropriate jurisdictional authority. Cooperation and assistance will be provided to other Federal, State, and local enforcement agencies.

B. Law Enforcement Program Prior to 1985

Prior to 1985 the Forest Service traditionally cooperated with and assisted the Montana Department of Fish, Wildlife and Parks in enforcing fish and game regulations. Most of the efforts were concentrated during the first few weeks of hunting season and involved very few employees.

Routine backcountry and wilderness patrols have been conducted on the Rocky Mountain Ranger District for years. Emphasis has been on camping techniques, wilderness techniques and campsite inspections. Historic use records and resource conditions were used to schedule patrols and maximize visitor contacts.

Although all Forest Service employees are Forest Officers and can enforce Federal laws and regulations, in order to issue Violation Notices, Forest Officers must receive 40 hours of law enforcement training (Level II). Prior to 1985 the District had only three officers that possessed the necessary qualifications to issue Violation Notices.

The District has historically and will continue to station a wilderness guard at Badger Cabin, a developed recreation guard at Marias Pass and a two-man trail crew in the Badger-Two Medicine area. The presence of these individuals has served as a deterrent against illegal activity in the area.

C. Existing Law Enforcement Program

In response to the problem identified in the Environmental Analysis, the Forest Service has taken specific actions to reduce and eliminate the illegal mortality of grizzly bears caused by poaching and uncontrolled hunting. Grizzly bear mortality prevention has become the priority enforcement project on the Rocky Mountain Ranger District.

1. Staffing and Training

The District is currently staffed with the following number of trained law enforcement personnel:

Level	#s	Minimum Hours of Training
IV	1	352 hours
III	2	80 hours
II	10	40 hours

Yearly refresher training for Level II and III personnel will be conducted on District with an eight-hour session being held each spring. Topics presented will be violation notices, incident reports, bond schedule revisions, court decisions, and changes to District enforcement policy.

Level II training for new employees will be scheduled as needed to assure that proper law enforcement training is maintained, especially for wilderness guards and developed recreation guards.

The District Level IV Law Enforcement Officer attends firearms requalifications twice yearly. Requalifications also include ongoing training in self-defense, weapon retention, equipment training, arrest techniques, court procedures, vehicle stops, etc. The District Level IV officer will have a fully equipped law enforcement vehicle starting in 1986. The District Level IV is also scheduled to attend 400 hours of Criminal Investigation School and 80 hours of fire and arson investigation school at the F.L.E.T.C., Glynco, Georgia.

Beginning in 1986, all violations that result in violation notices being issued, arrest situations, and any subsequent court actions will be published in the local media and the nearest large city newspaper such as Great Falls, Helena, Kalispell, Missoula, etc.

2. Implementation of the Forest Travel Plan

In 1985, the Forest Travel Plan was implemented. The plan is the first comprehensive management plan for vehicle travel on the District. The plan was prepared to protect resources (including wildlife) from the effects of off-road vehicle use, and to provide for public safety. The plan has been been expanded to include restrictions and closures for on-road and off-road uses as well. FImplementation efforts included signing, installation of gates, closure devices and on-the-ground enforcement.

The District imposed seasonal road closures on the Mowitch Basin and Little Badger Creek roads to prevent displacement and harassment of grizzly bears using their spring range.

3. Visitor Education and Prevention Efforts

Education of Forest visitors on proper backcountry use techniques and safety precautions have traditionally been aimed at wilderness users. In 1985, these efforts were expanded to include campground users, contractors and permittees. Grizzly Bear Incentive money was and will be used for further public and Forest Service education, patrols, and enforcement.

4. Patrols

Forest Service officers, Montana Dept. of Fish, Wildlife and Park Wardens and U.S. Fish and Wildlife Service Special Agents have conducted routine patrols throughout 1985. Because natural barriers to travel (high water and snow limit access to a majority of the area) patrols have been limited to those areas that are accessible.

D. Interagency Action Plan

In order to maximize the effectiveness of the wildlife law enforcement efforts, the Forest Service will serve as the central coordinator for agencies participating in the Inter-agency Plan.

The action plans for law enforcement activity will follow the policy and procedures outlined in the respective Internal Agency Direction and Interagency Cooperative Agreements. The specific Interagency law enforcement activities scheduled for the duration of the proposed drilling activity include the following:

1. BLM/USFS Administration of American Petrofina Activities

The BLM and Forest Service are responsible for administration of permitted activity. Permit conditions require American Petrofina to post road guards to prohibit unauthorized traffic. No pets or firearms will be permitted at the drillsite nor carried in vehicles anywhere within the lease/unit boundary. *

Forest Service and BLM personnel will make administrative inspections on a weekly basis for the duration of project activity.

Conflict or confrontation between grizzly bear and humans may require additional stipulations for the protection of the grizzly bear, may result in a temporary suspension of activities, or even disallow the use and occupancy that would be in violation of the Endangered Species Act.

Intentional or negligent acts by the operator, his/her agents, employees, contractors, and subcontractors that result in taking or harassing of a grizzly bear may be cause for termination of the permit in whole or in part, and may cause criminal action to be taken against the operator under provisions of the Endangered Species Act of 1973, as amended, or other applicable authority.

In short, the Forest Service and BLM will insure compliance of all standard conditions of approval of the APD in Occupied Grizzly Bear Habitat (see EA at A1-21).

2. Interagency Patrols

A series of interagency patrols involving representatives from participating agencies have been scheduled as follows:

a. July/August Trips - Forest Service, emphasis on public contacts and visibility directed towards summer use.

b. September Trip - Forest Service/Montana Dept. of Fish, Wildlife and Parks, emphasis on visibility and public comments. This trip is directed towards bow hunting season and general (west side) hunting season.

c. October/November Trips - Forest Service/Montana Dept. of Fish, Wildlife and Parks/U.S. Fish and Wildlife Service, emphasis on visibility and public contacts/education and enforcement. This trip is directed toward general big game hunting season.

3. Forest Service

Measures initiated by the Forest Service for the proposed project include a U.S. Fish and Wildlife Deputy Warden commission for the District Law Enforcement Officer. During the summer and fall, Forest Service employees with Level II law enforcement qualifications will patrol the area beginning June 1 through September 15.

Once bow season begins (9/15), through hunting season, Level II qualified law enforcement personnel will patrol during the first 10 days of the season. Level IV qualified personnel will spend at a minimum 20 days in the unit from September 15 to November 30. Enforcement efforts will be coordinated with the local Fish, Wildlife and Park wardens to maximize coverage and minimize duplication. Only the personnel with a "need" to know will be informed prior to the implementation of any patrols. All District personnel will make a concerted effort to provide needed information to the District Law Enforcement Officer if alleged violations are observed, i.e. suspect identification, vehicle description and license number, location, nature of offense, etc. Prompt investigation of all observed, suspected, or reported violations will be conducted by the District Law Enforcement Officer.

4. Montana Department of Fish, Wildlife and Parks

There is currently one enforcement warden whose assigned responsibility includes the geographical area known as the Badger-Two Medicine. Patrols are routinely conducted in the area on a weekly or bi-weekly basis depending on the other responsibilities. An excellent cooperative effort has been established between the Forest Service and the Montana Dept. of Fish, Wildlife and Park wardens that cover the Rocky Mountain Front. Cooperative patrols will be scheduled with the Montana Dept. of Fish, Wildlife and Park's Enforcement Division that will include winter/spring snowmobile patrols and summer/fall horseback and vehicle patrols. These patrols will cover the entire Rocky Mountain Front.

The Forest Service and the Montana Dept. of Fish, Wildlife and Parks have a Memorandum of Understanding concerning covert operations on National Forest lands. The matter of conducting covert activities will be discussed by the agencies.

Due to prior planning and budget and manpower limitations, the Montana Dept. of Fish, Wildlife and Parks is unable to commit any additional law enforcement effort beyond that discussed, for the duration of the drilling activity.

5. United States Fish and Wildlife Service

The USFWS statutes provide jurisdiction on National Forest lands in regards to enforcement of five major Protection Acts which include the Endangered Species Act of 1973 that protects the grizzly bear.

The USFWS has one special agent whose area of responsibility includes the Badger-Two Medicine Unit. Coverage of the area has been augmented with a USFWS Deputy Warden Commission for the Forest Service's District Law Enforcement Officer.

The USFWS conducts patrols on National Forest lands where the potential exists for the illegal taking of grizzly bears. These patrols are coordinated with the USFS and MDFWP.

Additional patrols by the USFWS in conjunction with the MDFWP and USFS will be ongoing during the duration of the Hall Creek drilling activity.

The USFWS has engaged in covert operations in the past. Implementation of such operations will be discussed and coordinated by the appropriate agencies. The nature of these operations prohibits further detail.

6. Bureau of Indian Affairs

Enforcement of Federal rules and regulations by the BIA are limited to the jurisdictional boundaries of the Blackfeet Reservation for fish and wildlife violations. The BIA does have a cooperative responsibility as a Federal Agency for fish and wildlife violations that occur on National Forest land, and have indicated this by assuring full cooperation with National Forest authorities concerning law enforcement matters.

7. Blackfeet Tribe

The Blackfeet Tribe has four wardens that patrol and enforce Tribal Conservation Laws on the Reservation. The wardens check non-members for fishing licenses and investigate incidents of non-members hunting on reservation lands.

At present, the reservation does not have hunting seasons, possession limits nor requires any of its Tribal members to possess a game license or permit. However, the Tribal Council is currently considering a revised fish and game code for implementation on the Reservation. This revision will include statements regarding the treatment of Threatened and Endangered species, such as the grizzly bear.

The Tribe has employed the part-time service of a professional consultant to evaluate existing biological data for the Reservation. The Blackfeet Tribe is seeking Federal funds to establish a full-time biologist position on the Reservation. The Tribal biologist working with Tribal wardens would use the base line biological data to formulate a comprehensive wildlife management plan and additional law enforcement regulations. Once complete, the plan would be submitted to the Tribal Council for approval.

The Tribal Council agrees to work cooperatively with Federal agencies on matters pertaining to wildlife law enforcement. Specifically, this would involve sharing information and assisting with investigations. In addition, the Tribal Council and USFS agree to work cooperatively on seasonal road closures to protect the wildlife resources. The Blackfeet Tribe is seeking a Deputy Warden Commission from the US Fish and Wildlife Service for a qualified Tribal member.

The agreement will be reviewed on an annual basis to reflect any change in the Tribal policy. The rights and privileges reserved to the Indians of the Blackfeet Indian Reservation by Article I of the Agreement set forth in, and accepted, ratified and confirmed by, the Act of Congress approved June 10, 1896, respecting that portion of their Reservation now known as RM-1 Geographic (Blackfeet) Unit of the Lewis and Clark National Forest, shall be in no way infringed or modified by this agreement.

8. National Park Service

The NPS enforcement personnel have jurisdiction on lands and waters of areas within the NP system. NPS personnel can report and be a witness against alleged violators engaged in activities outside the Park boundary, but cannot legally take direct enforcement action.

NPS responsibilities regarding the Hall Creek Drilling Permit would be to prevent encroachment on NP land by the drilling activity and prevent illegal activities by the drillers themselves on park land.

The NPS has indicated that the action will require additional patrols by the NPS enforcement personnel along the southern boundary of the Park adjacent to National Forest lands.

APPENDIX H

PLANT SPECIES OF SPECIAL CONCERN

- Scientific Name/Common Name Page H-1
- Global Rank Page H-1
- State Rank Page H-2
- R-1 Status Page H-3

PLANT SPECIES OF SPECIAL CONCERN

SCIENTIFIC NAME/COMMON NAME	RANKING GLOBAL	 STATE*	R-1 ** STATUS
Botrychium paradoxum W. H. Wagner Peculiar moonwort	G1	S1	S
Erigeron lackschewitzii Nesom and Weber Lackschewitz's fleabane.	G1Q	S1Q	W
Physaria saximontana Rollins var. *dentata* Rollins mountain twinpod	G3T2	SU	N
Antennaria pulcherrima (Hook.) Greene showy pussy-toes	G3G4	S1	S
Cypripedium passerinum Richards sparrow's-egg or Franklin's lady's-slipper	G4G5	S1	S
Cypripedium calceolus L. var. *parviflorum* (Salisb.) Fern. Yellow lady's slipper	G4T3	S2	S
Orchis rotundifolia Banks ex Pursh small round-leaved orchis	G5	S1	S
Astragalus molybdenus Barneby Leadville milkvetch	G3G4	S1	S
Oxytropis podocarpa Gray stalked-pod crazyweed	G4	S1	S
Carex maritima Gunn. curved sedge	G4	S1	N
Carex crawei Dewey Craw's sedge	G5	S1	N
Carex livida (Wahl.) Willd. pale sedge	G5	S1	S
Gentianopsis macounii (T.H. Holm) Iltis smaller fringed gentian	G5	S1	N
Eriophorum viridicarinatum (Engelm.) Fern. green-keeled cottongrass	G5	S1	W
Juncus acuminatus Michx. tapered rush	G5	S1	N

Saussurea densa (Hook.) Rydb. dwarf saw-wort	G4	S1	S
Erigeron flagellaris Gray trailing fleabane	G4	S1	S
Plagiobothrys leptocladus (Greene) Johnst. slender popcorn-flower	G4	S1	N
Polygonum douglasii var. *austinae* (Greene) M.E. Jones Austins knotweed	G4G5TU	SU	N
Cardamine rupicola (Rydb.) Hitchcock cliff toothwort	G3	S3	W
Oxytropis lagopus Nutt. var. *conjugens* Barneby rabbit-foot crazy-weed	G4T2	S2	N

* The global and state rankings are from the Montana Natural Heritage Inventory. This inventory includes plant species which are rare, endemic, disjunct, threatened, or endangered throughout Montana, or in need of further research. Plant taxa are ranked, in this inventory, by a standardized procedure used nationally. They are ranked on the basis of their range-wide or global rarity, and on their rarity within the specific state, using these ranking categories:

GLOBAL RANK	**DEFINITION**
G1	Critically imperiled globally because of extreme rarity (5 or fewer occurrences, or very few remaining individuals), or because of some factor of its biology making it especially vulnerable to extinction. (Critically endangered throughout range).
G2	Imperiled globally because of rarity (6 to 20 occurrences) or because of other factors demonstrably making it very vulnerable to extinction throughout its range. (Endangered throughout range).
G3	Either very rare and local throughout its range or found locally (even abundant at some of its locations) in a restricted range, or because of other factors making it vulnerable to extinction throughout its range; in the range of 21 to 100 occurrences. (Threatened throughout range).
G4	Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.
G5	Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
GU	Possibly in peril range-wide, but status uncertain; more information needed.
GH	Historically known; may be rediscovered.
GX	Believed to be extinct throughout range; historical records only, continue search.

STATE RANK	DEFINITION
S1	Critically imperiled in Montana because of extreme rarity (5 or fewer occurrences, or very few remaining individuals), or because of some factor of its biology making it especially vulnerable to extinction from the state. (Critically endangered in state).
S2	Imperiled in Montana because of rarity (6 to 20 occurrences), or because of other factors demonstrably making it very vulnerable to extirpation from the state. (Endangered in state).
S3	Rare in Montana (on the order of 20+ occurrences). (Threatened in state).
S4	Apparently secure in Montana.
S5	Demonstrably secure in Montana.
SU	Possibly in peril in Montana, but status uncertain; more information needed.
SH	Historically known in Montana; may be rediscovered.
SX	Apparently extirpated from Montana.

**The information on this list is a compilation of data from the Element Occurence database of the Montana Natural Heritage Program (reports of 1/7/88 and 5/31/88) and the Forest Service Northern Region Sensitive/Watch Plant List (3/10/88):

R-1 STATUS	DEFINITION
S	Plants that are listed as "sensitive" on the Northern Region Sensitive Plant List .
W	Plants that are listed as "watch" on the Northern Region Watch Plant List.
N	Plants that are not currently on a Northern Region List. These species are considered rare in Montana and are tracked by the Montana Natural Heritage Program.

OTHER CODES	DEFINITION
Q	Taxonomic questions or problems involved; more information needed.
T	Rank for a subspecific taxon (subspecies or variety); appended to the global rank for the full species.

It should be emphasized that many of the global and state ranks are currently being reviewed and are subject to revision.

APPENDIX I

EXISTING VISUAL CONDITION

- Existing Visual Condition Page I-1
- Existing Visual Condition Classes Page I-1
- Visual Quality Objective (VQO) Page I-2

EXISTING VISUAL CONDITION

EVC (Existing Visual Condition) is the visual change from the natural landscape, which is measured in degrees of deviation from the natural appearing landscape. To estimate the environmental effects of implementing alternatives, the landscapes predicted future visual condition is compared to the existing visual situation. Therefore, the existing visual condition inventory is the baseline for comparisons and serves as a historical record of the physical alteration. It may be used as part of the Recreation Opportunity Inventory to the delineate the "Evidence of Man." The inventory will also serve as a rough guide in identifying areas where visual resource improvement activities may be desirable.

The following are the premises upon which the inventory is made:

a. Measurements will be judged as to the degree of alteration from a desired visual goal of "natural appearing" landscape, since research indicates that this is the public's expected image of the National Forest lands.

b. Measurements must be capable of direct comparison with the predicted future visual condition that would result from implementation of alternatives.

c. It is a three dimensional physical inventory primarily developed from aerial photographs. It will measure the physical size and location of the alteration by degrees or amounts of change.

d. The existing visual condition will not establish priorities for rehabilitation. It only indicates what alterations are present.

e. Existing visual condition has no relationship to numbers of viewers nor their degree of sensitivity to visual alterations.

f. Existing visual condition is independent of variety classes and sensitivity levels or specific observer positions.

g. The inventory should be updated whenever the Forest Land Management Plan is updated.

EXISTING VISUAL CONDITION CLASSES

Existing visual condition classes are described below. Land is inventoried from a physical, aerial viewpoint rather than from the ground.

CLASS	DEFINITION
EVC 1 - *Untouched*	Areas of +/- 5000 acres in which only ecological changes have taken place, except for low impact rails and fences.
EVC 2 - *Unnoticed*	Changes in the landscape are not visually evident to the average person unless pointed out. This also includes low visual impact 2-track trails and roads that may or may not be visible on most aerial photo's.

EVC 3 - *Minor Disturbance*	Changes in the landscape are noticed by the average person, but they do not attract attention. The natural appearance of the landscape still remains dominant. This includes developed pastures and roads and fields not associated with farmsteads.
EVC 4 - *Disturbed*	Changes in the landscape are easily noticed by the average person and may attract attention. This includes cropland or highly developed hayfields (structural irrigation and canals). Well-designed oil fields are almost always included, as their size and influence over the landscape is not entirely mitigatable. The natural appearance of the landscape is definitely impacted in fields with well spacing at 160 acres or less.
EVC 5 - *Major Disturbance*	Changes in the landscape are strong and would be obvious to anyone. These changes stand out as dominating impression of the landscape. Oil fields that are not designed or have no mitigating measures, as well as other activities that have major landscape impacts, are included.
EVC 6 - *Drastic Disturbance*	Changes in the landscape are in glaring contrast to the natural appearance. Almost anyone would be displeased with the effect and agree that rehabilitation is required.

GLOSSARY

VISUAL QUALITY OBJECTIVE (VQO)	A desired degree of acceptable alteration of the landscape based on physical and sociological characteristics of an area. For this plan, these degrees of alteration are classified by preservation, retention, partial retention, and modification.
Preservation	Management activities, except for very low visual-impact recreation facilities, are prohibited. Only ecological changes are allowed.
Retention	Activities must not be visually evident and may only repeat form, line, color, and texture which are frequently found in the characteristic landscape. Changes in the qualities of size, amount, intensity, direction, and land pattern should not be evident. Duration of Visual Impact: Immediate reduction in form, line, color, and texture contrast. Retention should be accomplished either during operation or immediately after. It may be done by such means as seeding vegetative clearings and cut-or-fill slopes, hand planting of large stock, and painting structures.
Partial Retention	Activities remain visually subordinate to the characteristic landscape and may repeat form, line, color, or texture common to the landscape. However, changes in the qualities of size, amount, intensity, direction and pattern remain visually subordinate to the characteristic landscape.

Duration of Visual Impact: Reduction in form, line, color, and texture should be accomplished as soon after project completion as possible or at a minimum within the first year.

Modification

Activities may visually dominate the original characteristic landscape. However, activities of vegetative and land form alteration must borrow from naturally established form, line, color, or texture so completely and at such a scale that its visual characteristics are those of natural occurrences within the surrounding area or character type. Additional parts of these activities, such as structures, roads, slash, and root wads, must remain visually subordinate until they are compatible with the natural surroundings.

APPENDIX J

CORRESPONDENCE

- Resolution No. 289-86 from the Blackfeet Nation dated September 9, 1986 Page J-1
- Resolution No. 53-87 from the Blackfeet Nation dated November 7, 1986 Page J-3
- Excerpt No. E87-30 from the Blackfeet Nation dated November 7, 1986 Page J-5
- Letter from the Blackfeet Nation to Congressman Pat Williams dated April 7, 1986 Page J-7
- Letter from the Blackfeet Nation to Congressman Pat Williams dated November 18, 1986 Page J-12
- Letter from the Blackfeet Nation to Senator Max Baucus dated June 9, 1988 Page J-13
- Letter from Pete Dunbar, U.S. Attorney to Larry Jakub, Office of the General Counsel, dated June 30, 1986 Page J-14
- Letter from the U.S. Department of the Interior, Office of the Solicitor to the BLM State Director dated March 24, 1987 Page J-15

BLACKFEET NATION

P.O. BOX 850
BROWNING, MONTANA 59417
(406)338-7179

EXECUTIVE COMMITTEE

ARL OLD PERSON, CHAIRMAN
RCHIE ST. GODDARD, VICE CHAIRMAN
MARVIN WEATHERWAX, SECRETARY
ELOUISE C. COBELL, TREASURER

TRIBAL COUNCIL

EARL OLD PERSON
ARCHIE ST. GODDARD
MARVIN WEATHERWAX
ROLAND F. KENNERLY
LANE KENNEDY
BERNARD ST. GODDARD
LEE WILSON
GEORGE KICKINGWOMAN
TED WILLIAMSON

RESOLUTION

NUMBER: 289-86

WHEREAS: The Blackfeet Tribal Business Council is the duly constituted governing body within the exterior boundaries of the Blackfeet Indian Nation; and

WHEREAS: The Blackfeet Tribal Business Council has been organized to represent, develop, protect and advance the views, interests, education, and resources of the Blackfeet Indian Nation; and

WHEREAS: The Blackfeet Tribal Business Council is empowered to negotiate with federal officials on behalf of the Tribe by Article VI, section 1(a) of the the Constitution for the Blackfeet Tribe; and

WHEREAS: The Blackfeet Tribe reserved rights in the land ceded by the 1895 Agreement, 29 Stat. 321, 353-354; and

WHEREAS: The U.S. Forest Service, which presently manages those lands, has agreed that the Tribe should share in the management of this land; and

WHEREAS: Negotiations with the Forest Service over the past winter produced results which are acceptable to the Tribe, and more negotiations are possible in the future; now

THEREFORE BE IT RESOLVED: That the Blackfeet Tribal Business Council:

1. Reaffirms the appointment of Ed Aubert, Director of the Planning Department, as the Tribal representative to the Marias Pass Recreation Area Interagency team.
2. Appoints Bernard St. Goddard as the Tribal executive member representative to the Rocky Mountain Interagency Wildlife Task Force, he is also to serve as the Tribal representative to the Interagency Grizzly Bear Management Group.
3. Appoints David Broberg and Randy Kelly as the Tribal technical member representatives to the Rocky Mountain Interagency Wildlife task force.
4. Appoints Clarence Wagner, Jr., John "Buster" Yellow Kidney, and George Kicking Woman as cultural negotiators. These negotiators are to deal with the appeal of the Forest Plan on religious ground filed by three tribal members.
5. Appoints Bernard St. Goddard and Lane Kennedy as Roads negotiators.
6. Directs the Legal Department to prepare an attorney work product assessing the litigation possibilities presented by the reserved rights by December 12, 1986.

7. Directs the Chairman, the Legal Department and Forest Gerard to consult and work with the congressional staff of Senator Melcher and Representative Williams regarding possible legislative clarification of reserved rights. No bill is to be submitted to Congress without the expressed approval of the Blackfeet Tribal Business Council.

8. Affirms that Roland Kennerly as the Chairman of the Land Board and the Chairman of the Law and Order Committee is to oversee all negotiations with the Forest Service. He is to report to the Council on revision of the Tribal policy, future negotiations, and preparation of a Lewis & Clark project proposal.

9. The Economic Development Committee, TERO and Personnel Department staff are to meet regularly with the Forest Service on matters pertaining to employment and contracting.

ATTEST:

THE BLACKFEET TRIBE OF THE
BLACKFEET INDIAN NATION

MARVIN D. WEATHERWAX, SECRETARY

ARCHIE ST. GODDARD, VICE-CHAIRMAN

RESOLUTION

I hereby certify that the foregoing Resolution was adopted by the Blackfeet Tribal Business Council in a duly called, noticed, and convened Special Session assembled for business the 9th day of September, 1986, with Seven (7) Members present to constitute a quorum and by a vote of Seven (7) Members For and None (0) Opposed.

MARVIN D. WEATHERWAX, SECRETARY
BLACKFEET TRIBAL BUSINESS COUNCIL

BLACKFEET NATION

P.O. BOX 850
BROWNING, MONTANA 59417
(406)338-7179

EXECUTIVE COMMITTEE

EARL OLD PERSON, CHAIRMAN
ARCHIE ST. GODDARD, VICE CHAIRMAN
MARVIN WEATHERWAX, SECRETARY
ELOUISE C. COBELL, TREASURER

TRIBAL COUNCIL

EARL OLD PERSON
ARCHIE ST. GODDARD
MARVIN D. WEATHERWAX
ROLAND F. KENNERLY
LANE KENNEDY
BERNARD ST. GODDARD
LEE WILSON
GEORGE KICKINGWOMAN
TED WILLIAMSON

RESOLUTION

NUMBER: 53-87

WHEREAS: The Blackfeet Tribal Business Council is the duly constituted governing body within the exterior boundaries of the Blackfeet Indian Reservation, and

WHEREAS: The Blackfeet Tribal Business Council has been organized to represent, develop, protect and advance the views, interests, education and resources of the Blackfeet Indian Reservation, and

WHEREAS: The Blackfeet Tribal Business Council is empowered to negotiate with federal officials on behalf of the Tribe by Article VI, Section 1(a) of the Constitution of the Blackfeet Tribe, and

WHEREAS: The Blackfeet Tribe reserved rights in the land ceded by the 1895 Agreement, 29 Stat. 321, 353-354, and

WHEREAS: The U.S. Forest Service, which presently manages those lands, has agreed that the Tribe should share in the management of this land, and

WHEREAS: Negotiations with the Forest Service over the past winter produced results which are acceptable to the Tribe, and more negotiations are possible in the future.

NOW THEREFORE BE IT RESOLVED: That the Blackfeet Tribal Business Council:

1. Appoints Lee Wilson as the Tribal representative to the Goat Mountain I.D. team which will direct the preparation of the Enviromental Impact Statement for the proposed Chevron exploratory well on Goat Mountain.
2. Appoints Philip E. Roy, Ted Williamson and Donald Dubray as Timber Negotiators.
3. This Resolution is to be considered an addition to Resolution #289-86 which appointed a number of other negotiators.

ATTEST:

Lee Wilson

Lee Wilson, Acting Secretary
Blackfeet Tribal Business Council

THE BLACKFEET TRIBE OF THE BLACKFEET
INDIAN RESERVATION

Archie St. Goddard

Archie St. Goddard, Vice-Chairman
Blackfeet Tribal Business Council

CERTIFICATION

I hereby certify that the foregoing Resolution was adopted by the Blackfeet Tribal Business Council in a duly called, noticed and convened Regular Session. assembled for business the 7th day of November, 1986 with Seven (7) members present to constitute a quorum and by a vote of Seven (7) members FOR and none (0) OPPOSED.

Lee Wilson

Lee Wilson, Acting Secretary
Blackfeet Tribal Business Council

BLACKFEET NATION
P.O. BOX 850
BROWNING, MONTANA 59417
(406)338-7179

EXECUTIVE COMMITTEE

EARL OLD PERSON, CHAIRMAN
ARCHIE ST GODDARD, VICE CHAIRMAN
MARVIN WEATHERWAX, SECRETARY
ELOUISE C COBELL, TREASURER

TRIBAL COUNCIL

EARL OLD PERSON
ARCHIE ST. GODDARD
MARVIN D. WEATHERWAX
ROLAND F. KENNERLY
LANE KENNEDY
BERNARD ST. GODDARD
LEE WILSON
GEORGE KICKINGWOMAN
TED WILLIAMSON

November 17, 1986

EXCERPT

NUMBER: E87-30

LEWIS & CLARK NATIONAL FOREST: Roland Kennerly made a motion that the Blackfeet Tribal Business Council, having read the Issue Analysis Statement produced by the negotiation between the Tribe and the Forest Service regarding the land ceded in 1895 and administered by the Forest Service:

1. Consents to the following informal agreements with the Forest Service.

   a. Tribal members will be able to gather plants and natural materials, especially Indian paint without permit of any kind provided that these materials are not for re-sale and are not gathered in large quantities:

   b. Tribal members will be able to camp for less than fourteen days without permit of any kind;

   c. The Forest Service is granted access to TERO enrollment information;

   d. The Forest Service is encouraged to come to the reservation to recruit for their Summer Seasonal Temporary Employment Program (SSTEP);

   e. The Forest Service is encouraged to make greater use of their Junior Fellowship Program on the reservation;

   f. The Forest Service is encouraged to develop operating plans under the Master Cooperative Agreement with the Economic Development Committee;

   g. The Forest Service is encouraged to hold regular meetings regarding employment and contracting with the Economic Development Committee:

   h. In the event that a presently permitted livestock allotment is waived or otherwise becomes vacant, or should additional land become vacant, the Tribe will be notified;

   i. Joint field reviews of grazing conditions may be held, arrangements to be made through the Chairman of the Land Board;

   j. The Forest Service will share information regarding biological data and allow the Tribe to conduct separate biological studies provided that the Tribe requests a special use permit;

   k. The Tribe will provide the Forest Service with short and long range plans for timber use. The Tribe will request its members to apply for forest service free use permits to meet the demand for timber within the right reserved in the 1895 Agreement. These permits will be available from the BIA Forestry Department in Browning;

l. The Tribe may request commercial timber sales in the unit. otherwise none will be offered;

m. The Tribe will be notified if an outfitter permit becomes available.

n. The Tribe will be notified of activities on the unit as per the Issue Analysis Statement of May 15, 1986.

2. Authorizes further negotiations with the Forest Service regarding:

a. Management for the protection of religious use.

b. Camping by Tribal members for more than 14 days:

c. Boundary:

d. Revision of the Forest Travel Plan (Roads):

e. The development of a wildlife and fish habitat improvement plan. which would identify projects lending themselves to mutual planning or execution. This type of meeting should take place annually and is to emphasize projects which have the potential to improve conditions on both the National Forest and adjacent reservation lands. Cooperation in fisheries improvement could occur through Forest Service crews. Tribal Fish and Game and Water Department cooperating in construction projects which could train tribal members or the use of a Tribe "hotshot" crew if one is formed or by the Forest Service hiring Tribal members.

f. Outfitters and Guides.

3. These informal agreements are made with the provision that:

The rights and privileges reserved to the Indians of the Blackfeet Indian Reservation by Article I of the Agreement set forth in, and accepted, ratified and confirmed by, the Act of Congress approved June 10, 1896. respecting that portion of their Reservation known as RM-1 Geographic Unit of the Lewis & Clark National Forest, shall be in no way infringed or modified by these Agreements.

Motion seconded by Lee Wilson, and carried unanimously.

CERTIFICATION

I hereby certify that the foregoing Excerpt is a true copy taken from the Minutes of the Blackfeet Tribal Business Council during a duly called, noticed and convened Regular Session held the 7th day of November, 1986 with Six (6) members present to constitute a quorum.

(CORPORATE SEAL)

Marvin D. Weatherwax. Secretary
Blackfeet Tribal Business Council

BLACKFEET NATION
P.O. BOX 850
BROWNING, MONTANA 59417
(406) 338-7179

EXECUTIVE COMMITTEE

OLD PERSON, CHAIRMAN
J 'BUSTER YELLOW KIDNEY, VICE-CHAIRMAN
MYRNA J GALBREATH, SECRETARY

ELOUISE C. COBELL TREASURER
EX-OFFICIO MEMBER

TRIBAL COUNCIL

EARL OLD PERSON
JOHN "BUSTER" YELLOW KIDNEY
MYRNA J. GALBREATH
ROLAND F. KENNERLY
JOE J. MCKAY
ARTHUR WELLS
LEONARD J. MOUNTAIN CHIEF
CARL KIPP, JR.
TOM TAIL FEATHERS

April 7, 1986

Pat Williams
Congress of the United States
House of Representatives
Rayburn Building - Room 2457
Washington, DC 20515

Dear Pat:

As always the Blackfeet Tribe greatly appreciates your past, present and continuing concern for the rights of Indian people in Montana, especially the Blackfeet. We at the Blackfeet Tribe want to take this opportunity to thank you for your efforts regarding the Blackfeet Community Hospital, the Blackfeet Indian Writing Company, the Indian Hay Program, and your continued opposition to Gramm-Rudman-Hollings.

Specifically in regards to the Blackfeet reserved rights in that area of Lewis and Clark National Forest known as the Badger-Two Medicine Unit it is the position of the Blackfeet Tribe that we are completely and unequivocally opposed to the designation of that area as wilderness, wilderness study status, or any other official designation which in any way adversely impacts on the Blackfeet reserved rights.

That is not to say that we, the Blackfeet, are not concerned with the protection of the environment in the area of the Badger-Two Medicine Unit. However, we believe that as the holders of substantial property rights in the Badger-Two Medicine Unit, resource management decisions should be made by the Blackfeet in the first instance, or at least said decisions should be made only after consultation with and agreement of the Blackfeet.

Foremost, in our considerations is the fact that our grandfathers specifically bargained for the various reserved rights, recognizing that the resources embodied in the reservation of rights would be essential to the ultimate self-sufficiency of the future generations of Blackfeet. Wilderness status would of course be entirely inconsistent with various rights which we, the Blackfeet, claim as a result of the 1896 Agreement. Wilderness status would be completely inconsistent with our expressly reserved timber rights and it would also be incompatible with our claim to impliedly reserved rights in the areas of grazing, oil and gas ownership, and water storage or impoundment. Notwithstanding the Blackfeet reserved rights, it would be the Tribe's understanding that the provisions of the National Environmental Policy Act (NEPA) and the Endangered Species Act (ESA) would apply to development in the Badger-Two Medicine Unit even if the development was predicted on Tribal Treaty Rights.

A case in point would be the exploration currently taking place on the Blackfeet Indian Reservation by Chevron, U.S.A. In this case the well is being drilled only as a result of a non-jeopardy biological opinion issued by the U.S. Fish and Wildlife Service. The National Environmental Policy Act and the Endangered Species Act are designed to protect the environment. We as a Tribe will follow those laws, however, we will not let outside concerns preclude development of Tribal resources when that development is essential to improving the Reservation economy and the overall condition of the Blackfeet People.

Perhaps it would be useful to all concerned if some factual misconceptions were cleared up at this point regarding the Badger-Two Medicine Unit. First, the area is not a "roadless wild area" as it has been referred to by several environmental groups. The area is roaded and those roads have been historically used by members of the Blackfeet Tribe. Various logging activities have taken place in this area in the past, as well as grazing activities on large parts of the unit. The Blackfeet have also used the various roads and trails in the Ceded Strip in the exercise of our expressly reserved hunting and fishing rights.

Secondly, because the Blackfeet did reserve specific rights in this area (we are also claiming impliedly reserved rights) any action abrogating or limiting those rights would result in a taking of Blackfeet property without due process or just compensation. Moreover, there are other parties in this area with property rights (mineral lessees and grazing permittees) who would also lose their property rights without due process or just compensation if the land were declared wilderness. Such results would not seem to square with the governments expressed concern for protection of the individual and his property, nor is it consistent with the federal governments trust responsibility to Indian Tribes.

A third point also needs to be made, at least from the perspective of the Blackfeet, regarding the Montanans who are now opposed to development in the Badger-Two Medicine Unit. The Blackfeet have been fighting for almost 100 years to get what our grandfathers actually bargained for. Thus we have continually asserted our rights and have done everything short of all out litigation to protect and effectuate our rights while still giving deference to other valid property rights.

On the other hand, the environmental groups, which are largely non-Indian in population it seems, have come out of the woodwork to jump on the bandwagon of anti-development in this area only after the so-called Hall Creek well was proposed. In so doing, these people wish to ignore the Blackfeet rights and the longstanding commitments embodied in the 1896 Agreement. This result is totally unacceptable to the Blackfeet.

Finally, it is the position of the Blackfeet Tribe that the current situation has developed because of the misconception most Montanans have about the ceded strip lands. It seems that most of those voicing their opposition to development are not even remotely aware of the potential extent of the Blackfeet claim in the Badger-Two Medicine Unit.. And what information that has been officially put out by the Blackfeet Tribe is being ignored.

From the perspective of the Blackfeet the misconception held by the general public is due in large part to the failure of the United States Government (U.S. Forest Service) in not recognizing the full potential of the Blackfeet rights. Instead the Forest Service has had long read the Blackfeet reserved rights in a very narrow, restricted manner. The continuation of this policy by the Forest Service caused others to believe that the ceded strip was really no different than any other national forest area. Of course, nothing could be farther from reality.

As the United States Supreme Court has said, reservations of rights in Indian Treaties and agreements are like servitudes upon the land in which they were reserved, giving the Indians the right to occupy those lands for the purpose and to the extent of the reserved rights United States v. Winans, 198 U.S. 371, 381 (1905). The Blackfeet reserved rights in the Ceded Strip remain largely undefined in nature and scope. However, applying the above rule to the plain language of the reserved clause of the 1896 Agreement, it is clear that those lands cannot seriously be considered "public lands" as that term is commonly understood. It is possible that some Blackfeet rights could be determined to be exclusive rights; if such a finding were made it would eliminate the general public participation in that area. Thus, the "public" nature of the Badger-Two Medicine Unit is limited by and dependant upon the Blackfeet Treaty Rights.

As you are aware, the Blackfeet have been in negotiations with the Forest Service in an attempt to gain administrative recognition of our rights. These negotiations came about only because the Blackfeet successfully blocked the Hall Creek well on the basis of the existance, but undetermined nature of our rights. In this regard we are seeking congressional appropriations that would enable us to build a fish and wildlife department through which we could effectively and efficiently manage our resources both here on the reservation and in the Ceded Strip. Also through this program the Blackfeet will be better able to ensure compliance with all applicable laws and we will be more capable of developing and implementing our own management policies regarding various endangered species which are found on the Blackfeet Reservation and in the Ceded Strip. Indeed the very fact that endangered species (grizzly bear, grey wolf, eagle, perigrim falcon), are found on the Reservation is evidence of the Blackfeet's unwritten, culturally based concern for nature. Contrary to the rhetoric of the environmentalists, these species would not exist on the Reservation if the Blackfeet were not conservation oriented. We do not feel the need to point to any writing saying we are concerned about the environment. We merely point to the facts and say that our independant actions have never resulted in a total disregard for the environment. It should be noted that the area of the Reservation in which there have been many recent documented occurances of endangered species is an area where the Blackfeet manage as a game reserve. It is thus the position of the Blackfeet that development is not necessarily incompatible with conservation and environmental concerns. Blackfeet resource development decisions are based upon the needs of the Tribe as balanced against the effects of the proposed development upon the world in which we, the Blackfeet live. That world has long included the Badger-Two Medicine Unit.

In summary, the Blackfeet Tribe strongly opposes any wilderness status, wilderness study status or any other designation of the lands encompassed in the Blackfeet Ceded Strip, Badger-Two Medicine Unit, which results in abrogration or limitation of our rights as reserved by the Agreement of 1896. To agree to wilderness status for these lands would, in the words of the United States Supreme Court, result in "an impotent outcome to negotiations and a convention, which seemed to promise more and give the word of the nation for more." Antoine v. Washington, 420 U.S. 194 (1975) citing United States v. Winans, 198 U.S. at 380 and Puyallup Tribe v. Department of Game (Puyallup I), 391 U.S. 392, 397-398 (1968).

Once again thank you for your continuing concern on behalf of the Blackfeet and your willingness to take a few minutes out of your very busy day to visit with us and lend your assistance. Through your support for our congressional appropriations to fund a Reservation based Fish and Wildlife Department, I am confident that we can achieve our mutual goals.

Thank you.

Sincerely,

Earl Old Person
Chairman
Blackfeet Tribal Business Council
Browning, Montana 59417

EOP:jm;el

cc: Tribal Council (9)
Honorable John Melcher, United States Senate
Honorable Max Baucus, United States Senate
Honorable Ron Marlanee, U.S. House of Representatives
Superintendant, Blackfeet Agency BIA
Area Director, Billings Area Office, BIA
Mr. Lou Bruno, Glacier Two-Medicine Alliance
East Glacier Park, Montana

BLACKFEET NATION
P.O. BOX 850
BROWNING, MONTANA 59417
(406)338-7179

EXECUTIVE COMMITTEE

ARL OLD PERSON, CHAIRMAN
HIE ST. GODDARD, VICE CHAIRMAN
RVIN WEATHERWAX, SECRETARY
OUISE C. COBELL, TREASURER

TRIBAL COUNCIL

EARL OLD PERSON
ARCHIE ST. GODDARD
MARVIN D. WEATHERWAX
ROLAND F. KENNERLY
LANE KENNEDY
BERNARD ST. GODDARD
LEE WILSON
GEORGE KICKINGWOMAN
TED WILLIAMSON

November 18, 1986

Congressman Pat Williams
U. S. House of Representatives
Rayburn House Office Building
Room 2457
Washington, D. C. 20515

Dear Congressman Williams:

At their meeting on November 7, 1986, the Blackfeet Tribal Business Council decided to approve a number of informal agreements negotiated over the past winter by the Tribe and the U.S. Forest Service. Enclosed is a copy of the Council action.

This winter's negotiation efforts, using the informal agreements as a foundation, will be directed by Roland Kennerly, Chairman of the Blackfeet Land Board. The Council has appointed negotiators/representatives for Timber, Roads, Religious and Cultural Use, the Goat Mountain EIS ID Team, the Marias Pass Recreation Interagency Team, and the Rocky Mountain Interagency Wildlife Task Force.

Regarding the proposed Hall Creek Well, the Council voted to not allow the Roads Negotiators to negotiate member access to the road for the proposed well, thus foreclosing further discussion with the Forest Service on this matter. If further action is taken on the Application for Permit to Drill by the Bureau of Land Management, then the Council will decide what further action will be taken by the Tribe.

The Council is looking forward to our negotiations with the Forest Serice regarding management of the Blackfeet Unit of Lewis and Clark National Forest. We believe that these negotiations may lead to a significant amount of Tribal control of the Blackfeet Unit.

Sincerely yours,

EARL OLD PERSON, Chairman
Blackfeet Tribal Business Council

EOP/tag

BLACKFEET NATION
P.O. BOX 850
BROWNING, MONTANA 59417
(406)338-7179

EXECUTIVE COMMITTEE

EARL OLD PERSON, CHAIRMAN
ARCHIE ST. GODDARD, VICE CHAIRMAN
MARVIN WEATHERWAX, SECRETARY
ELOUISE C COBELL, TREASURER

TRIBAL COUNCIL

EARL OLD PERSON
ARCHIE ST. GODDARD
MARVIN D. WEATHERWAX
ROLAND P. KENNERLY
LANE KENNEDY
BERNARD ST. GODDARD
LEE WILSON
GEORGE KICKINGWOMAN
TED WILLIAMSON

June 9, 1988

The Hon. Sen. Max Baucus
706 Hart Senate Office Building
Washington, D. C 20510--2602

Dear Senator Baucus:

The Blackfeet Tribal Business Council, after much negotiation with various elements of the Blackfeet Reservation populace, have decided that the five year study of possible wilderness status for the "Ceded Strip" or, as it has more recently been called, "The Badger-Two Medicine" area of the northern portion of the Lewis and Clark National Forest, would benefit the Blackfeet. As you are aware, we intend to do all that is legally possible to protect the rights of the Blackfeet Nation within this area of land which was once a part of the Blackfeet Nation prior to the Agreement of 1895.

If the Montana Congressional delegation can assure the Blackfeet Tribal Business Council that the full force and authority of the legal rights outlined in the Agreement of 1895 will be maintained during the five year period of study status recommended in your wilderness bill, the Blackfeet Tribal Business Council will remain supportive of the measure.

The Blackfeet Tribal Business Council is apprehensive of the mineral development proposed for the Badger-Two Medicine area as per the leases which have been let to several mineral development companies in the past few years. The mineral rights have never been adjudicated legally; thus, until this issue is addressed the development in this area should be held in abeyance.

Another issue of no small concern to many Blackfeet Tribal members is one of rights outlined by the Congressionally mandated American Indian Religious Freedom Act of 1978. Members of the Blackfeet Tribe presently use the Badger-Two Medicine for religious purposes.

Many peripheral issues remain to be settled concerning this area; the Blackfeet Tribe has issued position papers to the U.S. Forest Service concerning these various issues.

Sincerely

Earl Old Person
Chairman, Blackfeet Tribal Business Council

U.S. Department of Justice
United States Attorney
District of Montana
Post Office Box 1478
Billings, Montana 59103
406/657-6101
FTS/585-6101

Address Reply to
United States Attorney
and Refer to
Initials and Number

June 30, 1986

Lawrence M. Jakub
Attorney in Charge
Office of General Counsel
P.O. Box 7669
Missoula, Montana 59807

RE: Blackfeet Access on Ceded Strip

Dear Larry:

Reference your letter dated June 20, 1986. I have reviewed the copy of Field Solicitor's opinion regarding Blackfeet access on the Ceded Strip as well as the other documents which you furnished to assist in my decision in answering will the office of the U.S. Attorney prosecute a Blackfeet Tribal member cited in violation of Forest Service road closure.

The answer is yes. We will prosecute a Blackfeet Tribal member or Indian person who violates the Forest Service road closure as it pertains to and is limited to vehicular traffic on the closed project road.

This opinion certainly would not interfere with the Tribe's reserved rights which were existing before the special use road was built, nor does it appear that the road in any way would preclude the Tribe from normal access and privileges. My decision is, of course, related to the enforcement of the specific violation of driving vehicles on the Forest Service road in contradiction to the road closure and restrictions as established by the U.S. Forest Service orders.

Sincerely,

/s/ Pete Dunbar

PETE DUNBAR
United States Attorney

PD:mah

cc: Ken Pitt
Office of General Counsel

United States Department of the Interior
OFFICE OF THE SOLICITOR
P.O. BOX 31394
BILLINGS, MONTANA 59107-1394

1987 MAR 25 AM 9 00
MONTANA STATE OFFICE
BILLINGS, MONTANA

March 24, 1987

BLM.BL.0082

MEMORANDUM

TO: State Director, Bureau of Land Management, Billings
Attention: 3160 (922.k.)

FROM: Richard K. Aldrich, Field Solicitor
Rocky Mountain Region (Billings)

SUBJECT: U.S. Forest Service Recommendations on Hall Creek Application for Permit to Drill

On January 23, 1987, you asked for our opinion on the adequacy of recommendations of the United States Forest Service (USFS) in meeting remand requirements ordered by the Interior Board of Land Appeals (IBLA) in Glacier Two Medicine Alliance et al., 88 IBLA 133. You expressed concern over USFS recommendations on road access restrictions and tribal participation in a law enforcement agreement. Our analysis follows.

We do not believe that IBLA required the Tribe to be a signatory to the law enforcement agreement. Nor do we believe that it is necessary that the law enforcement agreement clearly spell out the Tribe's or the Bureau of Indian Affairs' responsibilities.

We recommend that the USFS justification on Site Access Restrictions be amended. We recommend that the following language be inserted into the USFS discussion to replace the paragraph beginning "Regarding option (2)" and all remaining paragraphs in that section:

Regarding option (2), the Forest Service under the provisions of the Organic Administration Act of 1897 (16 U.S.C. 551) has the general authority to regulate the occupancy and use of National Forest System lands. By regulation (36 CFR 261.50), the Forest Supervisor has the authority to issue orders which close or restrict the use of areas described in such orders. Use of Forest Service roads may be restricted by Forest Supervisor's order under 36 CFR 261.53 and 261.54 which allow for restrictions to protect surface resources, endangered or threatened species, and for public health and safety. The Lewis and Clark National Forest Travel Plan, approved and implemented on August 1, 1984, expresses this general authority of the Forest Supervisor to restrict access.

The United States may restrict motorized access on the project road to the general public, and members of the Blackfeet Tribe, because such closure is necessary for protection of threatened and endangered species and will not abrogate nor impermissibly impact the rights reserved by the Tribe under the 1896 Agreement. In the 1896 Agreement, the Blackfeet Tribe reserved certain rights in the lands purchased by the United States. Among the reserved rights were:

> . . . Said Indians shall have, and hereby reserve to themselves, the right to go upon any portion of the lands hereby conveyed as long as the lands shall remain public lands of the United States, and to remove therefrom wood and timber . . . Article I, 29 Stat. 321, 353 (1896) (1896 Agreement)

It is significant that while under the 1896 Agreement the Blackfeet Tribe reserved a right of access, they did not specifically reserve the manner of access. The project road is a yet to be constructed road. The road closure involves restricting motor vehicle use upon the road. Therefore, with the mere restriction on the road regarding motorized traffic, the Tribe's reserved rights are still equal to those existing before the special use road was built and will not be diminished. The area will not be closed to the Blackfeet Tribe. Consequently, the Blackfeet may continue their historical access to the area.

Furthermore, the Forest Service has a compelling basis for regulating access. Limiting motorized vehicle access on the project road will protect grizzly bear spring habitat from human influence and protect wintering elk, a necessary prey species of the gray wolf. This road closure is required as a mitigation requirement for the U.S Fish and Wildlife Service's "no jeopardy" opinion issued January 14, 1985. The Endangered Species Act requires that all federal agencies adopt and implement management policies that do not jeopardize the continued existence of threatened or endangered species. The closure of the project road is one of the conditions necessary in order for the Federal agencies to carry out their responsibilities under the Endangered Species Act.

Despite the application of the Endangered Species Act, the agencies were concerned that the objective of not jeopardizing the continued existence of the grizzly bear be balanced with protecting the Blackfeet Tribe's reserved rights of access. We conclude that the objective of mitigating adverse impacts on the grizzly bear does not conflict with continued tribal access in its usual and accustomed manner. We also conclude that closure of the project road to the general public, and Blackfeet tribal members, is an appropriate regulation at this time under the circumstances as we see them.

Additionally, closure of the Hall Creek road to motorized access must not discriminate against the Blackfeet Tribe. A review of the rights of the Indian versus the rights of the non-Indian reveals that non-Indians as well as Indians will be restricted from access as the road will be closed to all but authorized motorized access. The Blackfeet will continue to exercise all rights reserved in the 1896 Agreement, including their historical access to the area. Therefore, this regulation of the manner of access does not discriminate against the Blackfeet.

Finally, before the access restrictions are implemented, the Forest Service has agreed to provide sufficient public notice, including direct notice to the Blackfeet tribal business council, and will design road signs that specifically note at appropriate locations the application of the road use restrictions to the Blackfeet Indians. Therefore, we conclude that regulation of access of Blackfeet tribal members will be expressed with such particularity that Blackfeet tribal members will know well in advance precisely the extent of the access restriction the government has found necessary, thereby giving adequate notice to tribal members.

While we believe that the IBLA remand points have been overcome, we continue to advise that *Conner* v. *Burford* requires a site specific environmental impact statement which adequately addresses cumulative impacts.

Please contact this office if we can be of further assistance.

John C. Chaffin
For the Field Solicitor

cc:
Regional Solicitor, Denver, CO
Area Director, Indian Affairs, Billings
Regional Director, U.S. Fish and Wildlife Service, P.O. Box 25486
  Denver Federal Center, Denver, CO 80225
Office of General Counsel, U.S. Forest Service, Department of
  Agriculture, P.O. Box 7669, Missoula, MT 59807
  Attn: Chris Reck

APPENDIX K

RECLAMATION AND ROAD MANAGEMENT

- Reclamation and Road Management Options Page K-1
- Forest Plan Road Use and Management Standards and Options Page K-2
- Conclusions and Recommendations Page K-7

RECLAMATION AND ROAD MANAGEMENT

Several options are available for post-drilling reclamation and road management in the RM-1 Unit. The Lewis and Clark National Forest Plan outlines management direction and goals for each of the Management Areas within the RM-1 Unit (see Appendix C for Forest Plan direction). This appendix outlines methods by which road management and reclamation can be accomplished consistent with the Forest Plan.

Below are the options available for management of the road corridors in the RM-1 Unit if drilling is conducted. Prescribed reclamation requirements would be approved by the Forest Service and incorporated in the drilling permit as a condition of operation.

RECLAMATION AND ROAD MANAGEMENT OPTIONS

Option 1. Maintain roaded access to accommodate public needs.

Option 2. Maintain road for administrative and permitted use, and for public use on a restricted basis.

Option 3. Maintain the road in a condition suitable for administrative use and for other uses as approved by permit only; close road to public use.

Option 4. Convert road prism to trail right-of-way, by converting to a non-use maintenance status, to accommodate motorized public use with appropriate restrictions.

Option 5. Convert road prism to trail right-of-way to accommodate non-motorized public use.

Option 6. Obliterate and close to public and administrative motorized use.

Option 7. Reclaim and close to public and administrative motorized use.

DEFINITIONS:

Obliteration means removal of drainage structures and associated fill dirt at stream crossings and floodplains; rough grading, scarifying, ripping and cross-ditching of the road subgrade, and revegetation with domestic and other suitable species. Surfacing shall be removed and disposed of at an acceptable site. Water bars and barricade beams will be constructed to prevent vehicle access. The road prism will remain in place.

Reclaim means obliteration (as defined above) *and* restoring the road prism back to original contour, revegetating with natural-like or native species.

Closed to Public Use means closed year-round to all motorized use.

Restricted Use means closed seasonally or by vehicle class.

Non-Use Maintenance activities include removal of those drainage structures where erosion or sedimentation potentials exist and installing water bars and barricades to control vehicle access. Road prism and surfacing would remain in place.

FOREST PLAN ROAD USE AND MANAGEMENT STANDARDS AND OPTIONS

The road corridors for the various roaded alternatives cross several Management Areas. Each area has a set of management prescriptions, by resource, as shown in the Forest Plan, that sets up direction designed to achieve an overall management goal for that area.

The following identifies the individual management area goals and applicable road use and management requirements for the RM-1 Unit. Also displayed are reclamation options that would be acceptable to achieve the unit's Management Area goals.

MANAGEMENT AREA E

FOREST PLAN GOAL: Provide sustained high level of forage for livestock and game animals.

Applicable road use and management requirements:

- Reclaim roads, if necessary, in compliance with management area goal of providing a sustained, high level of forage for livestock and wildlife.
- Roads usually will be closed to public use and obliterated when no longer needed for mineral activity.
- If a road is constructed for mineral exploration and development and opened to public use, regulate (permitted) use through permit clauses. If the road is to be closed to public use, but maintained for administrative use, the road must be left in a condition suitable for non-use maintenance.
- Achieve low public access through permitting motorized use on all arterial and most collector roads. Low access is defined as 0.5-1.5 miles of open road per square mile of area.

Reclamation Options:

* *Obliteration* of access road.

* *Reclaim* all or portions of the disturbed areas to meet surface quality objectives of providing forage and controlling motorized use.

* Maintain road for administrative use only.

* Maintain road for administrative and public use to accommodate limited public access needs.

* Convert road to trail right-of-way for *motorized* or *non-motorized* public use.

MANAGEMENT AREA F

FOREST PLAN GOAL: Emphasize semi-primitive recreation opportunities, while maintaining and protecting other forest resources.

Applicable Road Use and Management Requirements:

- Minimize public access by limiting motorized use to existing roads and travelways.
- Occupancy is allowed only if surface quality can be fully reclaimed.
- Roads will be closed to public and obliterated when no longer needed for mineral activity.
- Semi-primitive recreation must be given highest consideration when planning a utility-transportation corridor or facility siting.

Reclamation Options:

* *Obliterate* and close roads to public use.

* *Reclaim* and close roads to public use.

* Convert road prism to trail right-of-way for non-motorized use.

MANAGEMENT AREA G

FOREST PLAN GOAL: Maintain and protect forest resources with minimal investments.

Applicable Road Use and Management Requirements:

- Occupancy allowed only if surface quality can be fully reclaimed.
- Roads constructed for mineral use will usually be closed to public use and obliterated when no longer needed for mineral activity.

Reclamation Options:

* *Obliteration* of access roads.

* *Reclaim* all or portions of disturbed areas to meet surface quality objectives of controlling motorized use.

* Maintain access roads for administrative use; usually closed to public use.

* Convert road prism to trail right-of-way and landscape, revegetate (for motorized use, with appropriate restrictions as per travel planning, and/or non-motorized use).

The following shows, in a tabular format, minimum road management options which could be implemented in the various Management Areas:

Minimum Road Management Options
Prescribed in the Forest Plan

	Management Areas		
Options	E	F	G
1	X		
2	X		X
3	X		X
4	X		X
5	X	X	X
6	X	X	X
7	X	X	X

ANTICIPATED EFFECTS AND BENEFITS OF IMPLEMENTING OPTIONS 1 TRHOUGH 7

The interdisciplinary team has reviewed options 1 through 7 to determine how well they satisfy the issues raised in the EIS process. The team analysis is displayed in Tables 1 , 2, and 3 of this appendix. The table ratings of *low*, *moderate*, and *high* indicate the degree the option(s) will meet forest plan reclamation requirements, benefit designated area management (Forest Plan, Travel Plan), and/or mitigate impacts resulting from project construction and drilling activities.

This section also describes some of the anticipated long term effects and benefits of implementing the various post drilling reclamation options. That is, once the project is completed and reclamation done, depending on the type of reclamation option chosen, there will be evident changes in the area over the long term. Some may view these changes as positive or beneficial, while others may consider such changes to be undesirable, or negative effects. To accentuate the differences among the various options, discussion emphasis was placed on those items in Tables 1, 2, and 3 that vary significantly among the various options.

Oil and Gas Exploration and Development. Options 1, 2, and 3 provide a relatively higher level of benefit for oil and gas exploration and development, because roads would remain in place for future exploration of potential oil and gas reserves. Under options 4, 5, 6, and 7 significant reclamation work would severely limit access for oil and gas related work, and would burden lease holders with the added expense of closing and obliterating roads, and possibly reopening and/or rebuilding them at some future date.

Water Resources. Options 1 and 2 would be the least beneficial to water quality over the long term. Roads would be maintained and available to use by the public. This would result in an exposed road surface that could add to stream sedimentation. Public use could also result in erosion of off-road surfaces if topsoil and protective vegetation are disturbed by motorized vehicles. On the other hand, revegetation and closure of the area to motorized vehicles would prevent such disturbances both in and out of the road prisms.

Air Quality. Like water, effects on air quality would be related directly to road use, and the creation of road dust on the running surfaces. Closure of roads to motorized vehicles, as in options 5, 6, and 7 would prevent the creation of road dust. It would also prevent air quality problems resulting from the accumulation of emissions from vehicle exhausts.

Access Management. A desirable management strategy would be to retain any developed access facilities as an aid to accomplish needed management activities, such as fire suppression, range improvement, and resource monitoring. Control of use on any access facilities retained would be required to protect area resources and values. Options 2, 3, 4, and 5 would provide for ease of access for management related actions and various road closures and vehicle restrictions. Permit requirements would limit use deemed undesirable or incompatible with the overall management requirements of the area. Because controls and restrictions can generally be imposed under all options, no options were rated low.

Glacier National Park and Adjacent Wilderness. Options 5, 6, and 7 would be the most desirable in maintaining the natural surroundings of Glacier N. P., and particularly the adjacent areas of the Bob Marshall and Great Bear Wildernesses. The absence of motorized vehicles would be in contrast to options 1, 2, and 3, where vehicle use could create background noise and dust from public use or other permitted uses and would also add visual discord for an indefinite period. The other options (5, 6, and 7) would eventually revegetate and blend into the surroundings.

Badger-Two Medicine Roadless Area. Options 5, 6, and 7 provide some opportunity for the roadless area to regain some of its pre-drilling character. Under these options motorized vehicles would be excluded and roads would be reclaimed to prohibit vehicle use. Options 1, 2, and 3 would result in long term roads in the area that would be maintained and used to some extent. Under option 4 use of the area would be similar to present use patterns.

Wildlife (All Species). Options 5, 6, and 7 are the most desirable in ensuring the continued habitat for grizzly bear and wolf and would also be best in maintaining habitat for deer, elk, and other wildlife species. Options 1 and 2 are least desirable, because they allow public use of the area with conventional vehicles, thereby potentially increasing hunting pressure and harassment of the wildlife populations. Options 3 and 4 would be somewhat disturbing to wildlife because of ease of access to the area with off-road vehicles. Options 3 and 4 are closest to reflecting the present use patterns in Management Areas E and G, with respect to effects on wildlife. Option 5 would not be desirable in Management Area F, in that a cleared trail would tend to increase hunting pressure by providing access and clearing distance along the reclaimed road prism.

Fisheries. Fisheries impacts would best be mitigated by maintaining the existing habitat and preventing undue fishing pressure. Option 7 would best satisfy these requirements. Other options, particularly 1, 2, and 4 could adversely affect fishing pressure over the long term because of ease of access to the fishing streams. Under options 3 and 5, public access would be reduced through administrative closures and vehicle use restrictions and would not be as effective in controlling fishing pressure as option 7, where all access routes would be completely eliminated.

Vegetation. Options 6 and 7 would provide the greatest opportunities to restore natural vegetation removed in construction of the drilling projects. These options would also provide the best opportunities to control and/or eradicate noxious weeds since the routes would be closed to human use and further disturbance. Options 1 and 2 would be least desirable because portions of the road prism would remain unvegetated (approx. 2 to 3 ac. per mile of driving surface), and continual use of the access routes would increase the risk that noxious weeds could be brought into the area on vehicles and pack animals.

Outdoor Recreation. Reclamation options 1, 2, and 4 would be most desirable in maintaining the present recreation use patterns in the area. These options accommodate both on-road and off-road vehicle use, which are important elements of the recreation use pattern in Management Areas E and G. Option 5 best satisfies the recreation use patterns in Management Area F, in that it does not severely restrict the present non-motorized use in the area. Options 6 and 7 are least desirable from a recreation standpoint because they restrict both motorized use and non-motorized trail use.

Visual Resource. Views from Glacier National Park, U. S. Highway 2, and the Two Medicine Elk Calf Mountain National Recreation Trail are best maintained by using reclamation options 6 and 7, and to some extent options 4 and 5. Under these options the disturbed areas would be reshaped and/or revegetated to mask the unnatural features caused by the operation. However, a long period of time would be needed to eliminate the effects of a "forest corridor" where the road prism previously was located in a forested site. Under options 1, 2, and 3 any constructed roads would remain in place. Where they are located in seen areas, both roads and restored areas would become a long term visual feature on the landscape.

Blackfeet Religion and Culture. Any disturbance would be considered undesirable by those who use the area for religious or cultural purposes. Option 7 is considered somewhat of a better option for accommodating religious practices because the disruptive effect would be temporary. This option would revert the area back to a natural-like condition, and may be beneficial by eliminating sites of past disturbance activities in addition to those disturbances that would result from the proposed actions. For example, if existing roads are used for oil and gas access, they could be completely reclaimed so that over time they would be lost from the sights and minds of men.

Archaeological Values. Any disturbance would be potentially damaging to an archeological site or value. The imposition of post activity reclamation would increase this risk. The reclamation options generating the least risk are those that avoid any new earth disturbance during reclamation work, and prevent access by the public to areas of cultural significance. Only option 3 meets both of these requirements. Other options will require additional earth disturbance in finalizing reclamation work (options 4, 5, 6, and 7), or will allow access by artifact hunters (options 1 and 2). Even under option 3 there is some risk of artifact damage due to recreationists and collectors finding artifacts in exposed slopes and road cuts.

Blackfeet Reserved Rights. The most desirable options are those that allow the Blackfeet to exercise their expressed rights for hunting, fishing, and wood gathering with the least restrictions. Options 1, 2, and 3 would allow members of the Blackfeet Tribe to access the RM-1 area as public users or through permit issued by the Forest Service. Options 5, 6, and 7 would be least desirable in that they limit access to non-motorized methods such as pack animals. Option 4 is somewhat restrictive in that it allows only off-road vehicles or non-motorized methods.

Economics. The greatest economic benefits in terms of increased local revenues would be dependent upon the accessibility of the area for motorized vehicles. Activities such as oil and gas exploration (including seismic activity), oil and gas development, timber harvest, and grazing generate local revenue because of their extractive nature. Options 1, 2, 3, and 4 would accommodate these resources and uses because access would be available at reasonable cost. Under options 6 and 7, and to some extent option 5, access would be severely restricted or available only at high cost. Highly restrictive reclamation requirements under these options could put a financial burden on some individuals and companies holding leases in the RM-1 Unit. This could indirectly result in a loss of revenues to the local tax base. Additional capital investments would also be required to reconstruct accessways and roads for other extractive uses.

Social Conditions. This item reflects how well the reclamation options would satisfy the popular concern that the RM-1 Unit be managed in a way that preserves it traditional local character. Options 5 and 7 would be the most desirable over the long term because they would allow the area to revert back to a natural-like condition. This would also prevent the increased use of motorized vehicles on new roads and trails.

Options 3 and 6 would satisfy this concern somewhat by excluding motorized vehicles from new roads, and by limiting use to that permitted by the Forest Service for some specific purpose. The least desirable reclamation options would be options 1, 2, and 4. These options would open the area to more public use with little control or restriction on use of motorized vehicles in the area. In Management Area F, none of the reclamation options would be viewed with much favor. The area is currently unroaded, and any of the options would be a detriment to preserving the areas character. Only options 5 and 7 provide some promise for the long term of maintaining the area's natural character.

Health and Safety. The health and safety effects would likely not be significant for any of the options. Options 3, 5, and 7 are rated higher than the other options primarily because of restrictions on road use and motor vehicles. It is less likely under these options that there would be conflicts between the various user groups, such as vehicles, horses, snowmobiles, etc..

CONCLUSIONS AND RECOMMENDATIONS

Following the evaluation of all 7 reclamation options, the ID Team recommends the use of option 7 (full reclamation) as a general policy in the RM-1 Unit. This option best satisfies the issues and concerns, and is consistent with Management Area goals and objectives. If long-term road or trail access is desired, the team recommends that options 3, 4, 5, and 6 be considered for any new roads and trails constructed in Management Area E and G, and options 5 and 6 be considered for Management Area F.

In the application of this guideline the ID Team assigned a reclamation strategy for each project alternative. The reclamation strategy recognizes current use of existing roads and trails, and is consistent with the Lewis and Clark National Forest Travel Plan.

Recommended reclamation strategy for each alternative is as follows:

CHEVRON PROJECT:

Alternative 1A - Option 1 will apply to the existing Pike Creek Road. Option 4 will apply between Pike Creek road and Badger Cabin. Option 7 will apply between Badger Cabin and the well site.

Alternative 1B - Option 4 will apply between Highway 2 and Badger Cabin. Option 7 will apply between Badger Cabin and the well site.

Alternative 2 - Option 1 will apply to Road No. 9128 from the Forest boundary to the gate near Palookaville. Option 2 will apply from Palookaville to the intersection at White Rock Pass. Option 3 will apply between White Rock Pass and Badger Cabin. Option 7 will apply between Badger Cabin and the well site.

Alternative 6A - Option 1 will apply to the existing Pike Creek Road. Option 7 will apply between Pike Creek Road and the well site.

Alternative 6B - Option 7 will apply to the entire length of project.

Alternative 7A - Option 1 will apply to the existing Pike Creek Road. Option 7 will apply between Pike Creek Road and the well site.

Alternative 7B - Option 7 will apply the entire length of project.

Alternative 8 - Option 1 will apply to the existing Pike Creek Road (if used). Option 7 will apply to other access routes to the helicopter staging area.

Alternative 9 -	Option 1 will apply to Road No. 9128 from the Forest boundary to the gate near Palookaville. Option 2 will apply to any of Road No. 9128 that is used above the Palookaville gate. Option 7 will apply to all other roads used to access the helicopter staging area.
Alternative 12 -	Activity would not occur and reclamation would not be needed.

FINA PROJECT:

Alternative A2 -	Option 3 or 7 would apply between U. S. Highway 2 and the South Fork Two Medicine River crossing. (Option 3 would apply only if desired by local land owner(s). Option 7 would apply between the South Fork Two Medicine River crossing and the well site.
Alternative B2 -	Option 7 would apply to the entire length of project.
Alternative C2 -	Option 1 would apply to the Pike Creek Road. Option 7 would apply between the Pike Creek Road and the well site.
Alternative D1 -	Option 1 would apply on the Reservation Road up to the National Forest Boundary. Option 7 would apply between the National Forest boundary to the well site. The private ownership inside the National Forest may also be reclaimed under the option 1 guideline, if desired by the local land owner.
Alternative 8F -	Same as Chevron's alternative 8.
Alternative 9F -	Same as Chevron's alternative 9.
Alternative E -	No activity would occur and no reclamation would be required.

Table 1
Summary Ratings of Reclamation Options for Management Area E

Issues	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7
Oil & Gas Exp/Dvlp.	H	H	H	L	L	L	L
Water Resources	L	L	M	M	H	H	H
Air Quality	L	L	M	M	H	H	H
Access Management	M	H	H	H	H	M	M
Glacier N.P./Wilderness	L	L	L	M	H	H	H
Roadless Area	L	L	L	M	H	H	H
T&E Species	L	L	M	M	H	H	H
Big Game	L	L	M	M	H	H	H
Other Wildlife	L	L	M	M	H	H	H
Fisheries	L	L	M	L	M	M	H
Vegetation	L	L	M	M	M	H	H
Outdoor Recreation	H	H	M	H	M	L	L
Visual Resource	L	L	L	M	M	H	H
Culture/Religion	L	L	L	L	L	L	M
Archaeological Values	L	L	M	L	L	L	L
Blackfeet Reserved Rights	H	H	H	M	L	L	L
Economics	H	H	H	H	M	L	L
Social Conditions	L	L	M	L	H	M	H
Health & Safety	M	M	H	M	H	M	H

Table 2
Summary Ratings of Reclamation Options for Management Area F

Issues	Option 5	Option 6	Option 7
Oil & Gas Exp/Development	L	M	L
Water Resources	H	H	H
Air Quality	H	H	H
Access Management	H	H	H
Glacier N.P./Wilderness	H	H	H
Roadless Area	H	M	H
T&E Species	M	H	H
Big Game	M	H	H
Other Wildlife	H	H	H
Fisheries	M	H	H
Vegetation	M	H	H
Outdoor Recreation	H	M	L
Visual Resource	H	H	H
Culture/Religion	L	L	L
Archaeological Values	L	L	L
Blackfeet Reserved Rights	H	L	L
Economics	L	L	L
Social Conditions	M	L	M
Health & Safety	H	H	H

Table 3
Summary Ratings of Reclamation Options for Management Area G

	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7
Oil & Gas Exp/Dvlp.	H	H	L	L	L	L
Water Resources	L	M	M	H	H	H
Air Quality	L	M	M	H	H	H
Access Management	H	H	H	H	M	M
Glacier N.P./Wilderness	M	M	H	H	H	H
Roadless Area	L	L	M	H	H	H
T&E Species	L	M	M	H	H	H
Big Game	L	M	M	H	H	H
Other Wildlife	L	M	M	H	H	H
Fisheries	L	M	L	M	M	H
Vegetation	L	M	M	M	H	H
Outdoor Recreation	H	M	H	M	L	L
Visual Resource	L	M	M	M	H	H
Culture/Religion	L	L	L	L	L	M
Archaeological Values	L	M	L	L	L	L
Blackfeet Reserved Rights	H	H	M	L	L	L
Economics	H	H	H	M	L	L
Social Conditions	L	M	L	H	M	H
Health & Safety	M	H	M	H	M	H

APPENDIX L

TECHNICAL REPORT AND REASONABLY FORESEEABLE PROJECTIONS FOR POTENTIAL DEVELOPMENT OF OIL AND GAS IN THE RM-1 GEOGRAPHIC UNIT

(Badger Two Medicine Area)

Lewis and Clark National Forest

Rocky Mountain Ranger District

Montana

TABLE OF CONTENTS

ABSTRACT 1

PURPOSE OF THE ANALYSIS 1

HISTORICAL OIL AND GAS DISCOVERY RATES 2

Montana Overthrust Belt Discovery Statistics 2

- Individual Well Success Rates 2
- Field Success Rates 3

National Oil and Gas Discovery Statistics 3

- Individual Well Success Rates 3
- Field Success Rates 4

REASONABLY FORESEEABLE OIL AND GAS ACTIVITY IN THE RM-1 UNIT 4

Dry Hole Outcome 6

Single Well Field Outcome 8

- Development for Oil 8
- Development for Gas 9

Multiple Well Field Outcome 9

- Hypothetical Field Associated with Fina's Application 10
- Hypothetical Field Associated with Chevron's Application 11

POTENTIAL FIELD DEVELOPMENT IN THE RM-1 UNIT 11

Federal Lease Stipulations 11

General Field Development Requirements 12

Hypothetical Field Development in the RM-1 Unit 14

SOME CONCLUSIONS 15

SUMMARY OF CONTRIBUTORS AND REFERENCES 17

ABSTRACT

An oil and gas activity analysis was initiated to evaluate the possible future long term oil and gas activity in the RM-1 Geographic Unit based on what is currently known of oil and gas potential. Statistical data were used to determine the probability of discovering hydrocarbons and the likelihood of field development in the area. Using a model developed by Baker (1987), the number of dry holes likely to be drilled before abandoning the prospect was estimated. Geological data were used to outline two areas that have characteristics suggesting potential hydrocarbon accumulations.

These studies concluded that the statistical probability of finding an economical hydrocarbon discovery is very low and that the number of dry holes drilled is not likely to be more than two. The geology of the area suggests that there is the potential for two oil and/or gas fields.

PURPOSE OF THE ANALYSIS

The issue of oil and gas field development was raised during the Forest planning process and also during public informational (scoping) sessions regarding drilling applications filed by Fina Oil and Chemical Company and Chevron USA, Inc. In general, public concerns included such statements as:

> We should not be allowing leasing or exploratory drilling if the environment cannot afford the impacts of field development.
>
> Full field analysis should occur at the time of lease issuance, but if it is not done then, at least before any exploration is approved.
>
> How many dry holes would be drilled in the area?
>
> It is too early to address field development at the exploration stage. Exploratory drilling should be allowed. If a discovery is made, assess the well's production potential, and then address field development.

The purpose of this analysis is to respond to Federal Regulations for implementing the procedural provisions of the National Environmental Policy Act, with specific reference to 40 CFR 1502.22 regarding incomplete and unavailable information. This regulation requires that federal agencies use specific analysis procedures for addressing "reasonably foreseeable" significant adverse impacts where certain information is incomplete or unavailable.

As is commonly the case with oil and gas exploration activities, decisions to approve or deny activities must of necessity be made in the absence of adequate subsurface information on structural and petroleum geology and other quantitative and economic data that characterizes petroleum deposits. The question then arises is one of adequately addressing impacts of proposed and future oil and gas activities in the absence of the very information that is needed to "drive" or determine scope and extent of analysis.

The information herein, we believe, responds to the intent of the regulations without going to excess and defining activities and effects to such an extreme that conclusions may be branded as speculative or unfounded. In addition, this information expands upon the oil and gas field disclosures made in the Forest

Plan (page 4-5). At that time even less information was available on the specific drilling target areas in the RM-1 Unit.

This document summarizes the existing knowledge the Lewis and Clark National Forest has regarding potential oil and gas field development in the RM-1 Unit and makes projections on hypothetical field development. The following areas are discussed: 1) the statistical likelihood of an individual well discovery and a field discovery; 2) various outcomes of the present drilling proposals in the RM-1 Unit; 3) and a description of hypothetical oil and gas activity associated with the various outcomes of drilling.

HISTORICAL OIL AND GAS DISCOVERY RATES

There is very little information available with which to make a projection of where and to what extent field development for oil and/or gas in the RM-1 Unit would occur. This is due to the fact that there have been no field discoveries. Only two holes drilled in 1966 in the RM-1 Unit. One of the holes was abandoned because of drilling problems; the other was a dry hole.

Geologic information for the RM-1 Unit and regional geologic overthrust information was researched in order to gain an understanding of the nature of possible oil and gas discoveries in the area. Various sizes and shapes of fields were modeled and discussions were held with Company officials concerning field development. The fields on Map 4.1 represent the best "guess" at what a future hypothetical field could look like. At this point in time with no subsurface drilling data available there are few constraints within which to model a field. In order to establish some type of constraints in which to deal with a hypothetical field certain geologic assumptions were made (page L-10), and research into the past drilling efforts in the broad area of the overthrust belt was conducted. From the research the statistical likelihood of "Reasonably Foreseeable" initial discoveries and subsequent field development were made.

The "likelihood of discovery" referred to in this report is a measure of: 1) the probability of encountering producible quantities of oil and gas in an *individual new field wildcat well*: 2) the probability of discovery of a *gas or oil field* from an individual new field wildcat well. In this analysis, two general methods are used; the first is an analysis of the exploratory drilling history and subsequent field discoveries in the broad general area known as the Overthrust Belt of Montana. The second is an analysis of exploratory drilling statistics and resulting field discoveries on a national scale in order to establish a range of statistics.

Montana Overthrust Belt Discovery Statistics

Individual Well Success Rate

A "new-field wildcat" is defined as a well which is located on a structural feature or other type of trap which previously has not produced oil or gas (Johnston, 1986 p.1199). Since the first well was drilled in 1898, approximately 219 new-field wildcat wells have been drilled in the broad general area known as the Montana Overthrust Belt (Montana Geological Society, 1985 p.123-133, and map titled: *Wells Drilled for oil and gas in Western Montana and Eastern Idaho*, in map packet in back). This exploratory drilling effort has resulted in five wells capable of production. Four of these wells compromise the Blackleaf-Knowlton Gas Field and one well comprises the East Glacier Two Medicine Oil Field. This equates to a success rate of five out of 219 or 2.28%.

There are some inherent problems in generating statistics from this information. Not all of the 219 wildcat wells are considered to be exploratory tests of the geological structures that form the *Overthrust Belt* proper. Included in these figures are approximately 22 wells drilled into intermontane Tertiary basins such as the Deerlodge, Big Hole, Bitterroot, and Flathead (Kishenehn) basins. In addition, 87 wells were tests of the disturbed belt or the geologic zone equivalent to Mudge's Sub-belt I (Mudge, 1982). Ten of the 87 disturbed belt tests were judged by the author to have significance to the proposed tests by Chevron and Fina. The ten were thought to be significant because five were discoveries in the disturbed belt and five were geographically close to the RM-1 Unit. In addition there has been an enormous change in drilling technology and geologic exploration methods since the first well was drilled in 1898. Many of the early attempts of exploration in the Overthrust Belt proper have little bearing on today's probability. Thus of the approximately 84 Overthrust tests 35 were judged by the author to have little significance because they were shallow (less than 2500 to 3,000 feet), and in addition for 36 holes there was little information available to tell what kind of a test it was.

In summary: Total number of holes drilled................219
Tertiary basin tests................................22
Non-significant disturbed belt tests.................77
Non-significant overthrust belt tests................35
Older, shallow tests for which little
information is available.............................36

Total non-significant tests.........................170
Total significant tests........................49

Of the approximate 49 significant tests (drilled over an area of thousands of square miles) of the Overthrust Belt proper in Montana, there have been no discoveries to date, although many have had "shows" or traces of oil and/or gas. Thus, the probability of the two proposed tests in the RM-1 Unit are quite low, or zero. However, this cannot be used as an absolute indicator of the petroleum potential of the area. There are many professional assessments and geologic research articles that indicate a favorable petroleum potential for the broad area of the Montana overthrust and the northern disturbed belt; Clayton et.al., 1982, Dolton et.al.,1982, Miller,1975,1983, Mudge, 1982, Stark, 1982. However when it comes to evaluating individual prospects, the fact that previous drilling has not yielded economic discoveries of oil and gas does not influence the outcome of the proposed drilling. The main conclusion one can draw from the statistical projection is that the probability of success of the subject drilling applications is minimal at this time. The companies proposing the drilling think the probability of discovery is high enough to warrant the high costs of exploration. The nature of petroleum exploration involves drilling of high risk prospects with each having a low individual probability of discovery, over time exploration in unknown areas leads to discoveries of new petroleum producing areas.

Field Success Rates

Taking these statistics further, it could be said that the drilling of 219 exploratory wells in the broad general area of the overthrust has yielded two producing fields. The success rate for field discovery would thus be two out of 219 or 0.91%. One of these fields produces oil and the other gas, therefore, the probability of either type resulting from the drilling of an exploratory well is 0.455%. These statistics demonstrate that the probability of a new field wildcat well leading to a producible well or field is very low. In the Overthrust Belt proper the 49 holes have yielded no discoveries. Statistics on well and field discoveries on a national level are presented as follows for comparison purposes.

National Oil and Gas Discovery Statistics

Individual Well Success Rate

In 1985, 6,364 new-field wildcat wells were drilled, of which 1,009 were completed as producers. This represents an initial national success rate of 15.9% for a new-field wildcat well (Johnston, 1986:1196).

Field Success Rate

New-field discoveries are assigned a letter from A to F representing the estimation of the total volume of recoverable hydrocarbons (ultimate yield) in the field. The volumetric ranges covered by each of the letters are shown on Table 1. An early estimate of a field's potential is very speculative. A more realistic idea of the size of discovery and number of discoveries becomes apparent over time. There seems to be a tendency to overestimate small discoveries and underestimate large discoveries (Johnston, 1985, p. 1200). Size estimates can also change due to re-evaluation of performance, consolidation of wells and reclassification of categories of discoveries. For these reasons, field discovery statistics six years after the initial discovery are used as a standard of reporting.

Table 1 shows the number of fields by size class that were discovered by drilling of 6,413 new field wildcat wells in 1979, six years after initial discovery.

In 1979 the drilling of 6,413 new field wildcat wells resulted in an initial discovery of 887 oil and gas fields, for a success rate of 13.8%. Of the 887 total, 388 were new oil fields and 499 were new gas fields. Of the 388 new oil fields 29 were of the size class D or larger (which are rated as significant), for a success rate of 0.45%. Of the 499 new gas fields, 36 were rated as significant gas field discoveries, for a success rate of 0.56%. The success rate for the total number of 65 significant discoveries is 1.01%. [Note: the term "significant" is used in the context of petroleum volumetric determinations as defined by Johnston 1986 (p.1219), not as defined by NEPA. A significant field includes any of the size classes A-D tabulated in Table 1.]. Only significant size classes were used for this analysis because it is unlikely a smaller size field would prove to be economical to operate in the RM-1 Unit.

REASONABLY FORESEEABLE OIL AND GAS ACTIVITY IN THE RM-1 UNIT

This analysis was initiated to evaluate the possibility of long-term production impacts in the event that field development for the RM-1 Unit becomes a reality. This concern was expressed by the Park Service in response to a Forest Service letter to the Park Service (dated October 22, 1986) outlining the EIS alternatives.

TABLE 1

National Field Discovery Rates by Size Class Six Years After Initial Discovery Year 1979 (re-evaluated in 1985)

	Size Class of New Field Discoveries	Number of Discoveries	Success Rate by Size Class*	Distribution by Size Class**
Oil	A(>50 Million Barrels of Oil)	0	0	0
	B(25-50)	0	0	0
	C(10-25	2	.03%	.51
	D(1-10)	27	.42%	7.0
	E(<1)	355	5.5%	91%
	F(abandoned)	4	.06%	1%
Gas	A(>300 Billion Cubic Feet)	0	0	0
	B(150-300)	2	.03%	.4%
	C(60-150)	4	.06%	.8%
	D(6-60)	30	.46%	6.0%
	E(<6)	463	7.2%	93%
	F(abandoned)	0	0	0%

* $$\frac{\text{Total Number of New Field Wildcat Wells}}{\text{Number of Discoveries by Size Class}} = \text{Success Rate by Size Class}$$

** $$\frac{\text{Total New Fields Discovered}}{\text{Number of Discoveries by Size Class}} = \text{Distribution by Size Class}$$

Their concern specifically was whether approval of exploration access from US Highway 2 would eventually result in all production systems and facilities being funneled to that access corridor and eventually result in oil and gas development impacts along US Highway 2 adjacent to the Glacier National Park boundary. Other agencies and individuals have expressed similar concerns. The ID Team response to this matter follows two divergent scenarios. One is that both are dry holes, the other is that both result in "discoveries" of oil and gas.

Dry Hole Outcome

One scenario is that production will not result from the first wildcat well drilled (i.e. Chevron's or Fina's APD). Under this scenario, it is possible that additional exploration wells may be drilled on these prospects to further ascertain the presence of oil or gas. Such future drilling (whether involving dry holes or discoveries) are reasonably foreseeable activities in that such activities are logically needed for the lessees to accumulate sufficient data to make a determination whether to drop the prospect. The possibility that further drilling might occur under this scenario is discussed in detail below. The reasonably foreseeable locations of future dry holes would be within the boundary of the potential fields shown on Map 4.1(EIS). The Fina and Chevron prospects are the only prospects known in the RM-1 Unit.

Questions have been raised concerning the number of dry holes that would have to be drilled in the RM-1 Unit before the prospects would be abandoned. Based on a statistical approach we can make an estimate of the number of dry holes that would be drilled (Baker, 1988, p.77). The national statistics for new field wildcats indicate a 15.9% average success rate. If we use this success rate as the chance that either one of these prospects has hydrocarbons and we assume that the companies have picked a well location that has an 80% chance of hitting the hydrocarbons in the prospect, that indicates that 16% x 80% = 13% chance that the first well will find hydrocarbons in either structure. If we use statistics for the broad area of the Montana Overthrust belt of 2.28% success rate and the well location has an 80% chance of hitting hydrocarbons the chance of an initial discovery is given by 80% x 2.28% or approximately 2% chance of hitting hydrocarbons, in either structure.

Along with the chance of discovery question is the question of how many wells would have to be drilled before the prospect would be abandoned. If we evaluate an equation to estimate this we would see that approximately one well would bring the chance of either of these prospects being productive down to less than 5% based on national figures. If we feel that the well chance is less because of the complex geology and we run through the equations to estimate how many wells it would take to condemn the prospect based on a well chance of only 50% (that is a 50% chance that the well will evaluate the prospect), we would find that it would likely take two wells before abandoning the prospect. This is shown by the following calculations:

a) If the well chance is 80% (W), the going in chance of the prospect is 16% (P) and the lowest acceptable probability of the prospect producing after the first well is drilled as a dry hole is 5% (V). The equation for the number (N) of holes that have to be drilled before condemning a prospect is given by the equation:

$N = \text{Log}\ [V(1-P)/(P(1-V))]\ /\ \text{Log}\ (1-W)$

$V = .05$

$P = .16$

$W = .80$

$N = .799$ or 1 well

b) If we vary the conditions and say that the well chance (W) is only 50%, that is, the spot that was picked to drill was not the best because of geologic uncertainties, we can run another calculation. The results of this calculation indicate that it might take two wells to condemn the prospect.

There are many combinations of W and P that could be used in these equations. The value of P is based upon information gathered from national statistics and the value of N was chosen because it was felt that the company would like to drill on a location that had at least an 80% chance of encountering hydrocarbons and that the company would not want to drill on a location where they felt they would have less than a 50% chance of encountering hydrocarbons.

$N = \text{Log}\ [V(1-P)/(P(1-V))]\ /\ \text{Log}\ (1-W)$

$V = .05$

$P = .16$

$W = .50$

$N = 1.85$ approximately 2 wells

That would indicate a total program of one well for each prospect if the well chance for each is 80% or two wells for each prospect if the well chance is 50%.

There is also the question of how many prospects must be evaluated before we abandon efforts in the play (whole RM-1 Unit). If there is a 16% chance that one of the prospects will produce, the corollary is that there is an 84% chance that the prospect will not produce. The chance that both will be dry is given by $(.84)^2$, or a 70% chance that both will be dry. If the shared chance between the prospects is 50% chance of being favorable and a 16% independent chance of being successful, the equation for play chance before any prospects are tested is given by:

$C = S\ (1-(1-i)^{m}$

$S = 50\%$ $\quad$ $i = 16\%$ $\quad$ $M = 2$ (number of prospects)

therefore $C = .5\ (1-(1-.16)^{2}$

$C = 15\%$ = play chance for the RM-1 Unit

If we use this 15% play chance as our initial prospect chance, we will see as the well chance (favorable location on the Geologic prospect) goes down, the probability that the prospect will produce even though the first well is a dry hole goes up. If the well chance varies from 80% to 10%, the probability varies between 4% and 14% respectively. The better the location on the structure the less probability that the prospect will produce if the first well is a dry hole. The lower this probability the less chance that the company would be willing to invest the cost to drill another well on the prospect. This also gives an indication as to why companies oppose moving a well site to a less favorable geologic location. If the well they propose to drill is moved from a location they feel has an 80% chance of testing the formation for hydrocarbons to a location that has only a 50% chance, the probability that the prospect might produce even though the first well is a dry hole doubles (4% - 8%).

In summary, in the event that the first well is a dry hole, it is reasonably foreseeable that one more well would be drilled before either prospect would be abandoned.

Single Well Field Outcome

A less likely scenario is that either one or both of the wildcat wells will produce an economic "discovery" of oil or gas. Such a finding contributes to the possibility of long-term exploration and production activity.

In 1985, there was a national 15.9% initial success rate for new field wildcat wells. In Montana , drilling of 219 new field wildcat wells in the broad area of the Overthrust area has yielded five wells capable of production, or a success rate of 5 out of 219 or 2.28%. In the Overthrust Belt proper the drilling of 49 exploratory wells has yielded no discoveries, for a success rate of zero. Thus the ***initial*** success rate for discovery of a single well capable of production varies from 15.9% to zero.

After 6 years of evaluation, the national success rate for a new field wildcat well leading to field discovery was 13.9%. In Montana, the two fields capable of production in the broad area of the Overthrust Belt are the result of 219 tests, or two out of 219 or a success rate of 0.91%. There are no discoveries in the Overthrust Belt proper. Thus the success rate for *field* discovery from a new field wildcat well varies from 13.9% to zero.

Of all the field discoveries in 1979, 91% of the oil fields and 93% of the gas fields are in the size class E range (Table 1.), thus the most probable or "reasonably foreseeable" outcome of a discovery scenario is a size class E field, which would involve a single well at the Fina site and a single well at the Chevron site.

The initial national success rate for discovery of a Class E oil field is 5.5% and a Class E gas field is 7.2% (Table 1). If a discovery is made and production results from both wells, the following would likely result:

a. Long-term access to the producing well(s) would be required.

b. Production pipeline(s) would be needed.

c. Certain on-site facilities would be needed to treat and process the oil and/or gas.

Development for Oil

Various tests are needed to evaluate the commercial potential. These include analyzing drill hole cutting samples to detect evidence of oil; mud logging and coring drill stem tests to determine more closely the performance of the reservoir's productive capacity; and electrical log surveys to determine reservoir porosity characteristics, lithology, thickness, and presence of oil or gas. Depending on the outcome of the testing program, the companies may choose to: permanently plug the well and abandon the location; temporarily plug or shut-in the well until decisions are reached regarding future production options; or proceed with installation of on-site production equipment.

If the well is determined to be an oil producer, several steps would be taken to complete or develop the well. These steps usually include the following actions: install and cement casing; perforate reservoir; install production tubing; install control heads (an assembly of valves and gauges called a "Christmas

Tree") to control the rate of flow on flowing wells, or install a pumping unit to lift oil to the surface; erect a battery of tanks (usually two) for storing the oil; install a separator tower if oil has a high gas content to separate the gas from the oil; and if oil is contaminated with water, treat oil chemically or install a heater to remove water so that the oil meets pipeline requirements.

Development for Gas

Natural gas production is influenced by the above oil well development and production practices. However, there are certain features of gas fields that are specific to gas production. Reservoir pressure is the controlling factor in the ability of a well to produce. Estimating the reserves, forecasting production rates, and production life are early considerations in determining the economic feasibility of gas well completion and development. Completion of a gas well includes steps comparable to that for an oil well. Casing, tubing, and well head equipment are selected on the basis of flow rates, fluid erosion, and chemical corrosion. Safety shutoff equipment is more critical and must meet higher design standards; compressors may be needed to help produce the well if the producing pressure at the surface is less than pipeline pressure. Safety and flow regulator valves (the "Christmas Tree") are installed at the well head.

In summary, the above-ground production facilities of an oil well versus a gas well can be compared as follows:

Oil Well	**Gas Well**
Christmas Tree	Christmas Tree
Pumping Equipment	Compressor
Storage Tanks (Two)	Dehydration Unit
Gas Separator	
Heater Treater	

These facilities would be installed on approximately one-third of the existing well pad and maintained throughout the productive life of the well. The balance of the well pad would be recontoured and revegetated to as near its original condition as possible. Pipelines would likely be constructed within the corridors as shown on Map 4.1 (EIS).

If the exploration wells are successful, company plans for production would be communicated to the BLM and FS in the form of a Sundry Notice Application. Both agencies would review the application to assure compliance with lease/unit stipulations, mitigating measures in the EIS, and applicable laws and regulations. Supplemental environmental analyses would be required if the EIS does not adequately cover the anticipated environmental impacts of production from the single well.

The EIS will evaluate the effects of all roads, pipelines, and well site facilities in linear corridors to facilitate analysis by the Cumulative Effects Model. Final decisions on production systems cannot be made at this time, however, and must be based on the needs of the lessee(s) and the type of petroleum to be produced. This information currently is not available and can only be defined by drilling one or more wells on the prospect.

Multiple Well Field Outcome

Beyond what is reasonably foreseeable or the most probable outcome, is the remote possibility of extensive oil and gas production. This possibility is discussed in the *Lewis and Clark Forest Plan EIS*, 1986 (Sec. 4 - Minerals) and *Environmental Assessment for Oil and Gas Leasing Nonwilderness Lands, Lewis and Clark NF*, 1981. The probability of occurrence of such future activity as applied to the Chevron and Fina prospects is discussed below along with the types of activities that normally would occur coincidentally with such development.

Size class A,B,C,and D fields are referred to as significant discoveries (Johnston 1986:1919,1220). Of the 29 significant oil discoveries in 1979, 27 or 93% of them are in size class D range (see Table 1). Of the 36 significant gas discoveries, 30 or 83% are in the size class D range. Thus the most probable or "reasonably foreseeable" outcome of a significant field development scenario is discovery of a size class D gas and/or oil field. Development of a size class D field is assumed to involve drilling two additional wells within the boundaries of the fields shown on Map 4.1.

Because there have been no field discoveries, there is very little information available to make a projection of where and to what extent field development in the RM-1 Unit would occur. The Two Medicine - East Glacier field is approximately 10 miles away and the Blackleaf field is approximately 25 miles away, both in the disturbed belt geologic structures (although within the broad area of the Montana Overthrust Belt). Nevertheless, two natural gas fields were hypothesized for the purposes of gaining insight into the impacts associated with potential development.

Both fields are based upon the following assumptions. Many other extrapolations, assumptions and projections are possible. It must be understood that this study only represents one possible extrapolation based upon the assumptions and the facts that are available. These assumptions may change over time, and as a result, more accurate assessments can be made.

1. Natural gas, associated condensate and oil, if present, accumulated along the top of an anticline.

2. Subsurface anticline structures are assumed to be consistent with surface structures.

3. Production is primarily associated with the major anticlinal structure, and possibly with adjacent minor structures.

4. The anticlines are symmetrical.

5. Well locations will be located symmetrically along the surface trace of the fold axis.

6. State spacing regulations allow for one well per square mile.

7. Lease stipulations will have force and effect in controlling oil and gas activity.

These assumptions are based upon the following facts available to the author:

1. Surface anticlines on the attached map are based upon published data by M. Mudge, Bedrock Geologic Map of Part of the Northern Disturbed Belt, 1983.

2. Fina Oil and Chemical Co. (formerly American Petrofina) and Chevron have filed applications to drill (APD's) associated with major structures with surface expression.

3. Fina's development scenario shows seven wells associated with the major surface anticline (Hall Creek, 1985).

Hypothetical Field Associated with Fina's Drilling Request

The hypothetical field is shown on Map 4.1 (EIS). The probability for initial discovery ranges from zero to 15.9%. The probability for field development of a class D field from the initial new field wildcat well is approximately 0.42% for oil and 0.46% for gas (Table 1).

Such a development may cause the following: Two additional wells could be drilled in a northwesterly direction. Oil could be pumped north to US Highway 2 via a pipeline corridor (Map 4.1, EIS), and stored at a loading site near the highway where it would be transferred to tank trucks and hauled to Cut Bank. Access roads to the field could remain in place for the life of the field and be used by maintenance workers several times each day. The well sites could also be reached in a tracked snow vehicle during heavy snows. At other times, the access roads could be plowed. As another option, well heads could be remotely monitored via radio telemetry to reduce traffic if economically feasible.

Natural gas would be compressed and pumped north to US Highway 2. After an initial dewatering treatment on site, the gas would be pumped eastward to a gas processing plant.

Hypothetical Field Associated with Chevron's Drilling Request

The hypothetical field is shown on Map 4.1 (EIS). The probability for initial discovery ranges from zero to 15.9%. The probability for field development of a class D field from the initial new field wildcat well is approximately 0.42% for oil, and 0.46% for gas(Table 1.). Two additional wells are projected to be drilled in a northwesterly direction along the structure. Oil would be pumped eastward to Palookaville or northward to US Highway 2, depending upon the route chosen. At Palookaville it would be stored at a loading site and eventually trucked out to Cut Bank. Natural gas would be treated on site to remove water and piped to a gas processing plant east of the Forest, possibly to Cut Bank.

POTENTIAL FIELD DEVELOPMENT IN THE RM-1 UNIT

Discovery of commercial oil reserves could lead to additional proposals. The operators of the unit are responsible for preparing a Field Development Plan and submitting it to the BLM and FS for approval. The Field Development Plan would be based on findings of the exploration well and would be restricted to specific activities or facilities needed to further explore, and/or produce hydrocarbons.

Federal Lease Stipulations

A Field Development Plan would be governed by the terms of the federal lease/unit agreement. The federal lease/unit agreement terms include special stipulations which would be applied to the federal leases and the unit as appropriate. These stipulations would influence the design of field development plans. In particular, the No Surface Occupancy (NSO) stipulation, The Standard stipulation, the Activity Coordination stipulation, and the Limited Surface Use stipulation would limit and control surface developments. These stipulations are intended to protect sensitive resource values. Specific lease and unit stipulations that would limit and/or control surface development in the RM-1 Unit are as follows:

Table 2. Occupancy Limitations in the RM-1 Geographic Unit

Occupancy Limitation	Acres	% of the RM-1 Unit
No Surface Occupancy (NSO)	48,556	37
Limited Surface Use (LSU)	40,004	31
Surface Occupancy Restriction		
(by location)	<1,000	<1%
(timing)	27,708	21
Activity Coordination	130,216	100

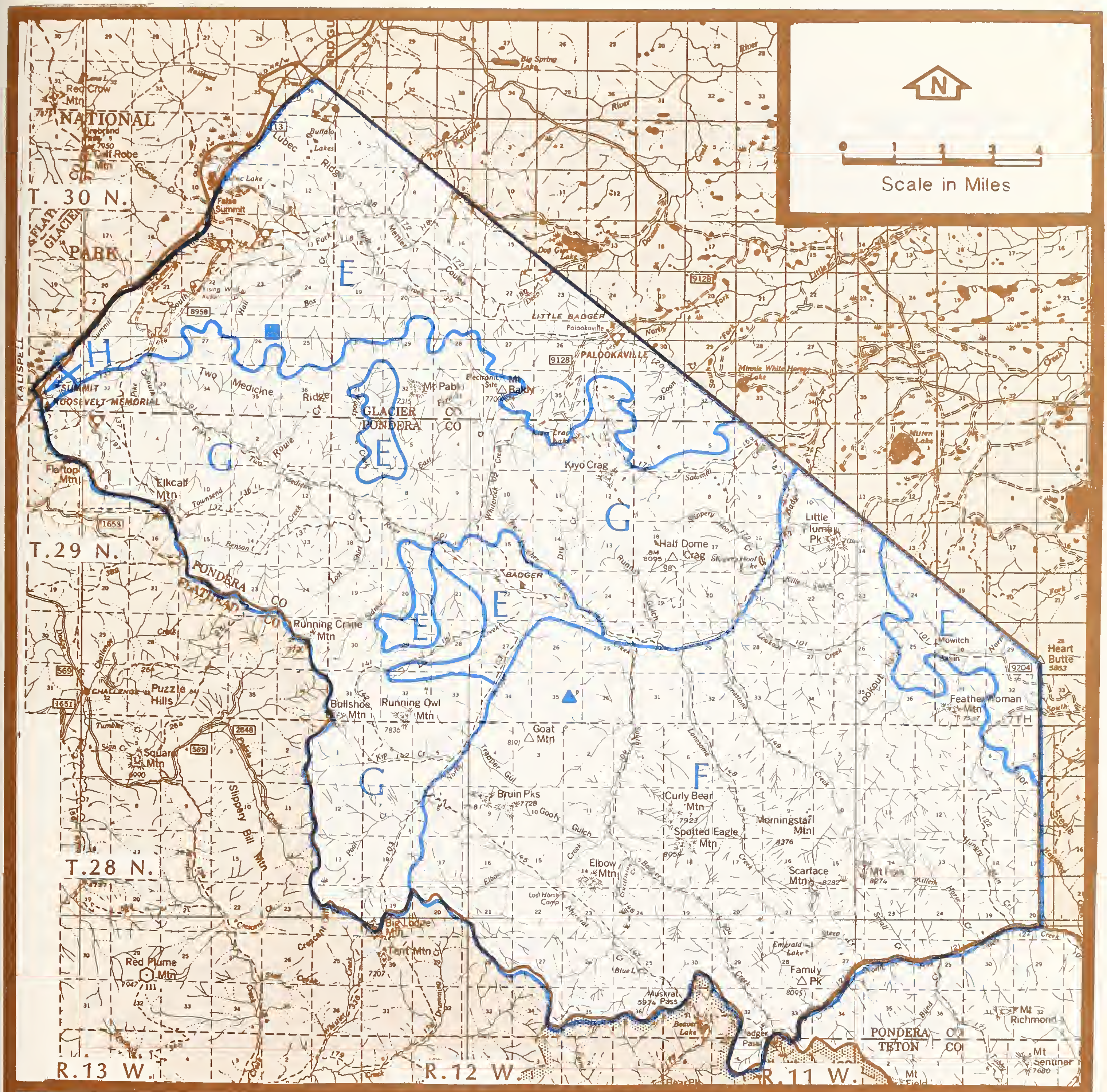
The NSO stipulations on landtypes having 60 percent slopes or greater and the LSU stipulation for technically unsuited soils restricts occupancy in many areas of the unit. Exceptions to these lease and unit agreement stipulations can be approved only if, after the preparation of an environmental analysis, an acceptable plan for mitigation is agreed upon between the Federal agencies and the company. It is necessary for the environmental document to specifically consider any change or modification of the stipulation(s) along with the alternative of not approving such change or modification. Occupancy limitations in the RM-1 Unit are displayed in Map 2.

> ***No Surface Occupancy Stipulation*** - These landtypes generally consist of slopes greater than 60 percent. Road construction and surface occupancy are not allowed unless project level analysis demonstrates that occupancy is environmentally acceptable.
>
> ***Limited Surface Use Stipulation*** - The Limited Surface Use Stipulation attached to the lease for these areas identifies the need for engineering constraints and special design requirements to protect soil and water resources.
>
> ***Activity Coordination Stipulation*** - The Activity Coordination Stipulation applies to the entire lease tract. This stipulation is applied to afford protection to the grizzly bear and gray wolf which are protected by the Endangered Species Act of 1973. The stipulation provides authority to limit activity levels in time and space and other special conditions, such as unitization prior to operation, which may be needed to protect species identified under the Endangered Species Act.

General Field Development Requirements

Specific proposals for future oil development would be based on company evaluation of the drilling and production testing programs currently proposed. In a general sense, development would involve construction and operation of facilities needed to efficiently produce, process, and transport the hydrocarbons from the field. Specific components which would likely be included in a Field Development Plan for the area include the following:

> ***Confirmation Well.*** An additional exploration well could be required to further evaluate and confirm the hydrocarbon potential of the field. A confirmation well would involve a program similar to that currently proposed but in a different location within the field. Its location would depend on the characteristics of the reservoir discovered and the surface resource protection needs.
>
> ***Production Wells.*** Oil and/or gas fields generally require more than one well to efficiently drain the hydrocarbon reservoirs. Well density and location are designed to efficiently produce the natural resource, based on specific reservoir characteristics, economics, and environmental considerations such as those addressed by the occupancy restrictions and the Activity Coordination Stipulation. Most of the information required to determine appropriate well density and locations is not available until after the reservoir has been penetrated and production characteristics have been established, then all pertinent information would be subject to the approval of the State of Montana Oil and Gas Conservation Commission, the BLM and FS.
>
> ***Roads.*** A road system would be designed and constructed so that equipment could be brought to each well site. Road standards would be dictated by the amount of traffic, safety considerations, and environmental concerns. Existing roads would be used wherever possible. The road system would be maintained and remain in place until production ceases and the abandoned well site(s) reclaimed.
>
> ***Production Transport.*** A system for transporting the oil and/or gas to central storage and treatment facilities would be designed. This could mean construction of a pipeline system, or trucking, or a combination of the two.
>
> ***Electrical Power Distribution.*** Electric power may be needed to operate and monitor production equipment.



LEGEND

▲ Chevron Well Site Location

■ Fina Well Site Location

E Management Areas

MAP C-1

MANAGEMENT AREAS

The location, size, and design of these potential facilities cannot reasonably be described without additional information on the characteristics of the hydrocarbon reservoirs that may exist within the RM-1 Unit. As previously stated, the purpose of the exploration well currently under consideration is to determine the existence and characteristics of potential hydrocarbon.

As part of the Federal technical and environmental review process, proposals for further oil and gas development in the Unit would be subject to the National Environmental Policy Act (NEPA) and the implementing regulations of the Council on Environmental Quality. Thus, once a conceptual development plan is submitted, the BLM and the FS would complete an analysis of all aspects of the field development proposal, and prepare the appropriate environmental document (either an EA or an EIS). Rationale for denial of activity would provide constraints under which further activity could be limited. As required by NEPA, the environmental review would include a formal process for identifying public and agency concerns regarding the proposal. The environmental analysis would specifically address the potential environmental impacts of the proposal and its alternatives. It would be distributed for public, State, and Federal agency review and comment. All comments received would be considered in the BLM and FS decisionmaking process.

Depending on the nature and extent of the conceptual development plan, field development activities may require additional or concurrent state environmental review under rules applicable in Montana. All Federal and State requirements would be coordinated.

Hypothetical Field Development in the RM-1 Unit

While it is highly speculative to address ***if***, ***when***, and ***how much*** such future development activity may occur, there is less uncertainty in defining ***how*** and ***where*** such activity will evolve, if it occurs at all. That is because these factors are controlled more by surface resource and technical engineering considerations than subsurface factors that are related to petroleum geology and economics.

Future development in the RM-1 Unit (if it occurs) will be guided by the management direction in the Forest Plan, by stipulations applied to the leases involved, and public involvement. It will also be guided by factors indicating technical feasibility or suitability and location of potential discoveries. We have applied the criteria to the two subject drilling proposals to define some possible future development scenarios. The application of the criteria and conclusions are discussed below.

a. ***Opportunity for roaded access.*** A preliminary transportation plan was prepared for the RM-1 Unit utilizing applicable management plan and lease stipulations. General engineering suitability for these routes is based on photo interpretation of the landscape and general engineering interpretations by Holdorf in *Soil Resource Inventory, Lewis and Clark National Forest*, October, 1981; and *Soil Survey of Glacier County Area and Part of Pondera County, Montana*, USDA, Soil Conservation Service, March 1980.

b. ***Opportunity for Pipeline Access.*** Because roaded access is needed to construct and maintain major pipeline facilities, pipeline development is generally confined to those lands that also are suitable for road construction. Additionally, for this analysis, pipeline suitability must meet the following additional technical criteria: (1) must be on slopes less than 40-45 percent to facilitate use by pipeline construction equipment; (2) must be located on well-drained, fairly deep soils to allow stable emplacement and/or burial of pipelines; and (3) must be on stable soil types. Technical suitability analysis is documented in attached tables 5 and 6. Ratings are based on information in *Soil Resource Inventory, Lewis and Clark NF*, Oct. 1981, and *Soil Survey of Glacier County Area and Part of Pondera County, Montana*, USDA Soil Conservation Service, March 1980.

c. ***Suitability for major facilities such as gas plants and treatment facilities.*** Information on Map 1 was based on information in the *Soil Resource Inventory for the Lewis and Clark National Forest* (October 1981) and *The Soil Survey of Glacier County Area and Part of Pondera County Montana* (March 1980). In assessing overall suitability, local landtypes and soil units were rated as "good", "fair", "poor", and "very poor" based on the geotechnical and foundation engineering properties of the various soil units. See Tables 7 and 8. Ratings are relative and reflect differing degrees of engineering costs and techniques to support such facilities. The "good" rated soils are best because of relatively cheaper engineering costs and techniques. The "very poor" rated soils would be most costly for constructing such facilities.

Land slope also is important criteria in assessing cost of constructing facilities. Lower slope gradients provide the least costly alternatives for constructing such facilities. As a general rule, the steeper the slope the higher the cost of such construction.

Map definitions for defining facility suitability are as follows:

Well suited = rate "good" in geotechnical and foundation suitability, and are mostly gentle slopes (<10 percent)

Moderately well suited = rate "good" or "fair" in foundation suitability and have slopes up to 20 percent

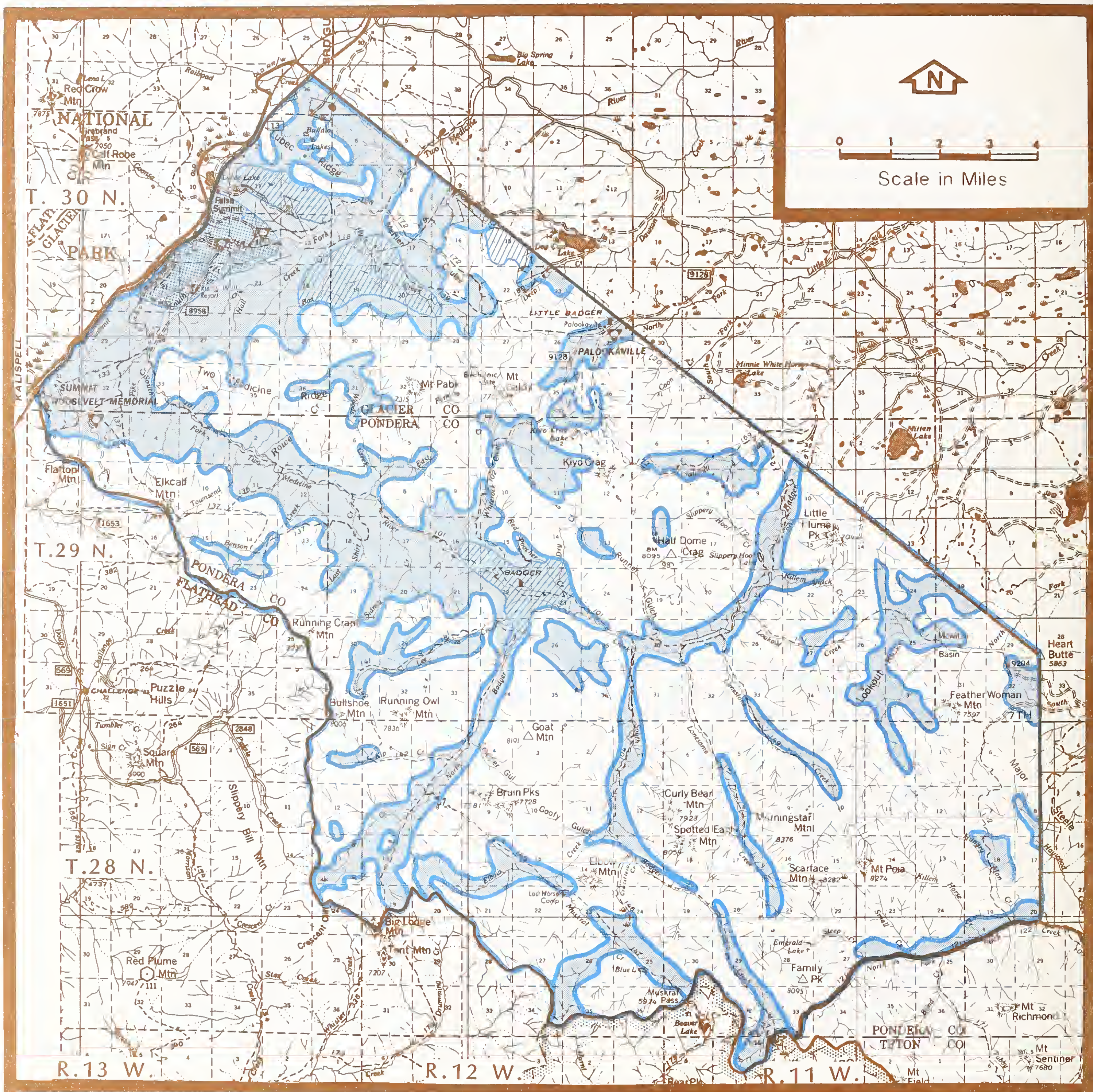
Other = slope and soil constraints make these areas least suitable for such facilities. That is, not to say they are not suited, however, construction cost would be high in a relative sense and special construction techniques may be required.

Sensitive lands such as wetlands and riparian zones were identified as unsuitable for such development. In this area, landtype 200 on the Lewis and Clark National Forest is identified as well suited from a soil standpoint, but was not considered to be a viable area for such development because of the sensitive status for wildlife, water, and other uses.

Map 1 delineates areas that are well and moderately well suited for oil and gas development based on the criteria discussed above. It should be emphasized that the areas delineated are not currently being recommended for any such activities. If there is eventually a need for sites for developing oil and gas facilities, it is likely that the areas identified on the enclosed map would receive serious consideration. Final decisions for such construction would require substantially more engineering and cost information, and detailed environmental studies; they must also be available for purchase or permit; and must meet the legal requirements for such facilities.

SOME CONCLUSIONS

The application of the foregoing criteria has resulted in the delineation of potential oil and gas development corridors, See Map 1. At present we have no knowledge that any or all of these corridors will be utilized and to what extent. They are identified at this time merely to show possible future development opportunities and to provide the decision makers with a "vision" of how a decision on the Fina and Chevron APD's may relate to possible, but unlikely, future development activities. Effects of development in the identified corridors is addressed in the EIS to the extent reasonable.



LEGEND

🟦 Areas less than 20% slope and generally suitable for Roads, Pipelines and Utility Corridors

☐ Areas generally greater than 20% slope and having limited suitability for Roads, Pipelines, and Utility Corridors

▦ Areas well suited for major facility location

▨ Areas moderately well suited for major facility location

MAP L-2

PRODUCTION FACILITY ANALYSIS

SUMMARY OF CONTRIBUTORS AND REFERENCES

This analysis was accomplished by the following individuals:

Chuck Frey, Primary Author, Geologist, U.S. Forest Service, Great Falls, Montana
Chuck Laakso, Petroleum Engineer, Bureau of Land Management, Great Falls Resource Area
Lynne Dickman, Geologist, U.S. Forest Service, Missoula Montana
Douglas McClelland, Geotechnical Engineer, U.S. Forest Service, Missoula, Montana
Norman Yogerst, Soil Scientist, U.S. Forest Service, Missoula, Montana
Dale Schaeffer, Civil Engineer, U.S. Forest Service, Lewis and Clark National Forest, Great Falls, Montana

References Cited

Baker, 1988, When is a Prospect or Play Played Out?; Oil and Gas Journal, Jan 11, 1988.

Clayton, Jerry L., Mudge, Melville R., Lubeck, Carlos M., and Daws, Ted A., 1982, Hydrocarbon Source - Rock Evaluation of the Disturbed Belt, Northwestern Montana: Rocky Mountain Association of Geologists, Vol. 2, page 777.

Dolton, G.L., Carlson, K.H., Charpentier,R.R., Coury,A.B., 1981, Estimates of Undiscovered Recoverable Conventional Resources of Oil and Gas in the United States: U.S. Geological Survey Circular 860.

Forest Service, 1985, Environmental Assessment Hall Creek APD: USDA Forest Service.

Johnston, Robert R., 1986, North American Drilling Activity in 1985: American Association of Petroleum Geologists, October 1986.

Miller, Betty M., 1975, Geological Estimates of Undiscovered Recoverable Oil and Gas Resources in the United States: U.S. Geological Survey Circular 725.

Miller, Betty M., 1983, Petroleum Potential of Wilderness Lands in the Western United States: U.S. Geological Circular 902-A-P.

Mudge, Melville R., Earhart. Robert L., 1983 Bedrock Geologic Map of Part of the Northern Disturbed Belt, Montana, U.S. Geologic Survey Map I-1375.

Mudge, Melville R., 1982, A Resume of the Structural Geology of the Northern Disturbed Belt, Northwestern Montana: Rocky Mountain Association of Geologists, Vol. I, page 91-122.

Stark, Phillip A., Gorden, M.S., 1982, Exploratory Drilling and Distribution of Hydrocarbon Shows in the Western Thrust Belt of the U.S.: Rocky Mountain Association of Geologists, Vol. II, page 507-519.

Additional References

Holsan, Gary,1988, Sohare Creek Unit Exploratory Oil Well No.1-35, Final Environmental Impact Statement, U.S.D.A., Forest Service.

TABLE 5

Pipeline Suitability by Landtype

Landtype 1/	Characteristics	Rating
22	soils are mod. deep and well drained; the most severe hazard is cutbank failure on steeper slopes; some areas of shallow groundwater.	fair
24	coarse well drained soils with no restriction to water movement; no engineering limitations for pipelines.	good
25, 25A, 25B, 25C	coarse well drained soils with no restriction to water movement; some potential for mass failure on steeper slopes and cutbanks.	fair
30	soils are deep and well drained; no engineering limitations for pipelines.	good
71	soils are coarse and well drained with no restrictions to water movement; no engineering limitations for pipelines.	good
71B	soils are similar to Land Type 71; no engineering limitations for pipelines.	good
161	shallow soils (20-40") with no restriction to water movement; no engineering limitations except soil depth.	fair
170	soils are similar to Land Type 71; no engineering limitations for pipelines.	good
171	soils are similar to Land Type 71; no engineering limitations for pipelines.	good
172	soils are deep and well drained; no engineering limitations for pipelines.	good
177	soils are deep and well drained, except some wet areas. Some potential for mass failure on steep slopes.	fair
181, 182, 183	complex of rockland, scree and shallow soils; poor soil continuity for pipelines, steep slopes.	poor
200	deep flood plain soils with fluctuating water table; special pipeline techniques may be required.	fair
201	soils deep, poorly drained, organic surface horizons are unsuited for pipeline use.	poor
202	steep, unstable slopes; rockland, scree surface.	poor

1/ Soil Resource Inventory, Lewis and Clark N.F., October 1981. Interpretations by N. Yogerst, January 1988.

TABLE 6

Pipeline Suitability by Soil Type
N. W. Yogerst, January 27, 1988

Map Unit 1/	Characteristics	*Rating*
1. Loberg Whitmore	deep excessively drained stony loams on gentle-to-steep slopes (4-60%)	fair
3. Lobert Mord Rock Outcrop	deep well drained stony loam; gentle to very steep slopes; (8-60%); scattered rock outcrop.	good-poor
4. Adel Babb Hanson	deep, well drained loams and stony loams; gentle slopes and uplands (2-35%)	good
5. Raynesford Whitmore Hanson	deep, well drained stony loams; level to steep topography. (mostly 2-35%, scattered slopes to 60%)	good-poor
6. Leavitt Burnette	deep, well drained soils, level to mod. sloping (0-35%);	good
7. Hanson Babb	deep, well drained stony loams; mod. to gentle slopes (2-35%)	good
8. Michelson Red Chief Pishlein	deep, well drained soils on gentle to very steep slopes. (0-50%)	good-fair
13. Raynesford Hanson	deep, well drained gravelly soils; undulating to steep slopes (0-35%); inclusions of wet, shallow soils.	fair
15. Fairfield Martinsdale	deep, well drained gravelly loams gentle slopes and uplands (0-8%);	good
16. Williams Zahl	deep, well drained soils on uplands; gentle to med. slopes (2-35%)	good
21. Cabba Wayden	shallow soils, well drained on rolling to steep topography (4-45%)	poor
22. Gallatin Beaverton Novary	deep, well to poorly drained soils on gentle slopes and bottoms (0-4%)	good-poor
23. Vanda Absher Saline	deep soils, well to poorly drained, on level to gentle slopes (0-4%).	good-poor
24. Cabba Rentsac Rock outcrop	shallow soils, well drained and stony. Steep and very steep slopes (15-60%)	poor

1/ Soil Survey of Glacier County Area and Part of Pondera County, Montana. USDA, Soil Conservation Service, March 1980. Interpretations by N. Yogerst, January 1988.

TABLE 7

Facility Siting Suitability Analysis by Landtype

Landtype 1/	Characteristics	Rating
25A	least desirable for facility and road location due to their moderate cutbank slumping, road maintaince requirements and surface rutting	poor
25B	same as 25A	poor
161	stable but expensive for construction where topography is steep	good
170	fairly stable but prone to rutting and would require surfacing	fair
172	same as 170	fair
183	stable but expensive for construction where topography is steep	good
200	same as 170	fair

1/ Soil Resource Inventory, Lewis and Clark NF, October 1981. Interpretations by D. McClelland, January 1988.

TABLE 8

Facility Siting Suitability by Soil Type

Map Unit	Description	Rating
1. Loberg Whitmore	SC GM,GC,SM, or SC	fair
3. Loberg Mord	SC ML,CI	very poor
4. Adel Babb Hanson	ML ML,SM GM,SM	fair to v. poor
5. Raynesford Whitmore Hanson	SM,ML GM,GC,SM,SC GM,SM	fair
6. Leavitt Burnette	CL CL,ML,CH	very poor
7. Hanson Babb	GM,SM ML,SM	fair
8. Mickelson Redchief Pishkin	CL,SM,GC,GM GC,CL GM,SM	fair
13. Raynesford Hanson	SM,ML GM,SM	fair
15. Fairfield Martinsdale	CL CL,SC	very poor
16. Williams Zahl	ML,CL ML,CL	very poor
21. Cabba Wayden	ML,CL CL	very poor
22. Gallatin Beaverton Novary	ML,CL GC,SC,GW ML,CL	fair to v. poor
23. Vanda Absher	CL,CH CL	very poor
24. Cabba Rentsac	ML,CL SM	fair to v. poor

Soil Survey of Glacier County Area and Pondera County, Montana USDA Soil Conservation Service, March 1980. Interpretations by C. McClelland, January 1988.

APPENDIX M

EXCERPTS OF
ETHNOGRAPHIC AND ETHNOHISTORIC STUDY
OF THE BADGER-TWO MEDICINE AREA

ETHNOGRAPHIC AND ETHNOHISTORIC STUDY OF THE BADGER-TWO MEDICINE AREA

The Lewis and Clark National Forest contracted with Dr. Sherri Deaver, Ethnoscience, in 1988, to conduct an independent analysis of traditional Blackfeet use of the Badger-Two Medicine area. Deaver also considered potential effects of oil and gas exploration on Blackfeet use of the area, and possible mitigation measures. Deaver has considerable experience dealing with Native American cultural and religious issues in Montana.

Deaver's study found basically the same information as our Forest study: oil and gas exploration activities would cause visual, auditory, and physical disruptions to the peaceful character of the Badger-Two Medicine and could interfere with Blackfeet cultural practices. Deaver's previous work with the Cheyenne and other Native American groups found that there can be ways to mitigate impacts to cultural practices. However, the Blackfeet traditionalists have not been willing to discuss possible mitigation measures.

Following is an excerpt of pages 16 and 17 from Deaver's report.

Potential Effects to Blackfeet Use of the Badger-Two Medicine

Oil and gas development in the Badger-Two Medicine area will change the character of the physical environment by introducing visual, auditory, and physical intrusions. The construction of roads to the planned well sites will increase the traffic in the area. The noise during the construction and drilling phases will disturb peacefulness of the area. Derricks and associated structures used during the exploration phase will cause a change in the cultural landscape. These physical, auditory and visual intrusions will disturb the spiritual attributes of the environment and will make the area less suitable for traditional cultural practices. Importantly, an increase in noise, traffic, and population will decrease the solitude and seclusion of the area which are necessary for those seeking to communicate with the supernatural in the context of vision quests and sweats.

The increased number of roads associated with potential development can have both positive and negative effects on traditional practices in the area. They will make the area more accessible to other hunters and sportsmen, hikers and campers, as well as those people directly employed in the exploration effort. One effect of this will be to decrease the seclusion of the area, thus decreasing its suitability for fasting, increasing the possibility that offerings may be disturbed and thus desecrated. Another effect of these roads could be that they will facilitate both hunting and gathering by Blackfeet by increasing access to difficult to reach areas. This could be a particular advantage to tribal elders who find it difficult to traverse the rugged landscape.

Methods of Mitigating Possible Effects

There are several possible ways to mitigate the cultural impacts of oil and gas activity in the Badger-Two Medicine area. Effects to the spiritual qualities of the landscape at the most general level can be mitigated through avoidance, i.e., not permitting exploration. Other ways to mitigate these may exist but cannot be documented at this time. It is probable that there are Blackfeet ritual specialists who know the proper theological forms to ask forgiveness or make atonement to the spirits for particular types of environmental damage. Consultation with the tribal elders could determine if this is a possible mitigation option.

Locality specific impacts may be lessened by several different strategies. Access roads can be planned so that they are environmentally screened from likely vision questing areas. This option would require systematic consultation with Blackfeet traditionalists who use the area. Should the exploration phase prove successful and well(s) brought into production, all necessary structures can be environmentally screened by vegetation and landforms and/or constructed out of materials which blend with the surroundings. This will lessen the visual impacts to the surrounding areas. This strategy would also require systematic consultation with Blackfeet traditionalists. All access roads and well pad areas should be surveyed for archaeological sites as part of the normal review process as stipulated by section 106 of the National Historic Preservation Act. In addition, since this is a known sensitive area, the permit for the archaeological work should stipulate that a Blackfeet cultural representative will accompany the archaeologists, that cultural significant sites will be avoided, and any sites located will not be collected from, nor tested, without the explicit concurrence of the Blackfeet cultural advisor.

Noise pollution during the construction, exploration and production phases can be somewhat lessened by cooperative scheduling. This will require consultation between Blackfeet traditionalists and those overseeing the oil and gas operations.

Finally, a schedule of all permitted development activities should be publicized in the local Blackfeet communities. This will allow traditionalists to take their own private mitigative measures, e.g., removing sacred items from planned impact area (s) and/or avoiding contact with development-related activities while engaging in traditional rites. This is an important mitigation tactic because it allows Blackfeet traditionalists to maintain the privacy of their traditional activities.

None of these methods of mitigation can be expected to be effective unless they are made stipulations of the permit.

Future Research

The first step in any future research concerning Blackfeet use of the Badger-Two Medicine area is for this report to be reviewed and evaluated by the tribe for accuracy and completeness. Further, the scope and design of future research should incorporate Blackfeet suggestions and concerns.

APPENDIX N

HELICOPTER MOBILIZATION

HELICOPTER MOBILIZATION

Helicopter mobilization would require an access road to be built to a helipad. Equipment, supplies and personnel would then be hauled by helicopter to the well site to build the well pad. After the pad area has been constructed the rig sections would be hauled to the site for assembly. A well drilled to approximately 5,000 feet in Wyoming (North Fork Well) was estimated to require approximately 900 trips to complete construction, drilling, abandonment procedures and reclamation. (A trip is considered to be both the route to and from the well site.) In actuality, approximately 1700 trips were required for the operation (Columbia Helicopters, 1986). An estimate of the number of trips it would take to construct, drill and abandon either the proposed Chevron or Fina wells was made based on the information for the North Fork Well (Compare on Table N.1). This estimate indicates that each well would require approximately 2300 helicopter trips.

Because the actual number of trips needed to complete the North Fork Well (1700 trips) was nearly twice the number of trips originally estimated (900 trips), helicopter mobilization of the Chevron or Fina wells could require from 2300 to 4400 trips for each operation. Chevron has estimated that helicopter mobilization would add approximately 5 million dollars over the cost of drilling their well using roaded access (Chevron Letter to Forest Supervisor, 1/30/87).

Any accidents or unforeseen events could require significant increases in the number of trips required.

Table N.1
Comparison of Helicopter Lift and Flying Hours
for proposed Chevron project and North Fork Well

Lift Description*	**North Fork Well**	**Chevron Well**
Avg. Lift Capacity	4,500-5,000 lb.	4,500-5,000 lb.
Loads to move rig in and out	400 = 70 hrs.	400 = 70 hrs.
Drilling Mud	30,000 lbs.= 6 loads = 1 hr.	60,000 lbs.= 12 loads= 2 hr.
Sacks of Cement	450 sacks = 7 loads = 1 hr.	3450 sacks = 70 loads = 10 hrs.
2 D-5 Cats	16 loads = 3 hrs.	16 loads = 3 hrs.
Surface Casing	15 loads = 3 hrs.	24 loads = 6 hrs.
Intermediate Casing	9 loads = 2 hrs.	34 loads = 8 hrs.
Drilled solids, surface	62 loads = 9 hrs.	104 loads = 15 hrs.
Drilled solids, intermediate	29 loads = 4 hrs.	104 loads = 22 hrs.
Change out drill string	36 loads = 6 hrs.	86 loads = 14 hrs.
Testing and coring	6 loads = 1 hr.	6 loads = 1 hr. (testing only)
Logging unit	6 loads = 1 hr.	6 loads = 1 hr.
SUBTOTAL - "TANGIBLE" LOADS	**590 loads=102 hrs**	**863 loads=152 hrs.**
Rig Fuel and air fuel	50 loads = 9 hrs.	73 loads = 13 hrs.
Location cleanup	35 loads = 6 hrs.	70 loads = 12 hrs.
Roundtrip time from home base	10 hrs.	NA
TOTAL without personnel ferrying	**675 loads=127 hrs.**	**1007 loads = 177 hrs**
Personnel	200 loads = 30 hrs.	1270 loads=190 hrs.
Miscellaneous (5%)	35 loads = 5 hrs.	35 loads = 5 hrs.
TOTAL	**910 loads=162 hrs.**	**2311 loads=372 hrs.**

* Lift ability of a Columbia Boeing Vertol 107

Bell 206 long range helicopter transporting personnel (Alaska)
Photo courtesy of Columbia Helicopters, Inc.

Example of helicopter mobilization for wildcat drilling
Boeing Vertol 107. Photo courtesy of Columbia Helicopters, Inc.

APPENDIX O

- Onshore Oil and Gas Order No. 1; Approval of Operations on Onshore Federal and Indian Oil and Gas Leases Page O-1

- Onshore Oil and Gas Order No. 2, Drilling Operations on Federal and Indian Oil and Gas Leases Page O-11

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

43 CFR Part 3160

[Circular No. 2538]

Onshore Oil and Gas Order No. 1; Approval of Operations on Onshore Federal and Indian Oil and Gas Leases

Under the authority of the Act of February 25, 1920, as amended and supplemented (30 U.S.C. 189, 226), and Executive Order 12291 (46 FR 13193), Part 3160, Group 3100, Subchapter C, Chapter II of Title 43 of the Code of Federal Regulations is amended as set forth below.

PART 3160—ONSHORE OIL AND GAS OPERATIONS

Section 3164.1(b) is amended by adding the following table:

§ 3164.1 Onshore Oil and Gas Orders.

* * * * *

(b) * * *

Order No.	Subject	Effective date	FEDERAL REGISTER reference	Supersedes
1	Approval of operations.	Nov. 12, 1983	48 FR 48916, and 48 FR. ____	NTL-6.

Appendix—Text of Oil and Gas Order

Note.—This appendix will not appear in the Code of Federal Regulations.

Contents

Onshore Order
Introduction
I. Accountability
II. Special Situations
III. Drilling Operations
  A. Surveying and Staking
  B. Material to be Filed
    1. Notice of Staking
    2. Application for Permit to Drill
  C. Conferences and Inspections
  D. Processing Time Frames
  E. Cultural Resources Clearance
  F. Threatened and Endangered Species Clearance and Other Critical Environmental Concerns
  G. Components of a Complete Application for Permit to Drill
IV. Subsequent Operations
  A. Production Facilities
  B. Other Operations
  C. Emergency Repairs
  D. Environmental Review
V. Well-Abandonment
VI. Water Well Conversion
VII. Privately Owned Surface
VIII. Reports and Activities Required After Well Completion

Onshore Oil and Gas Order

Federal and Indian Oil and Gas Leases

Order No. 1

Effective: November 21, 1983.

Approval of Operations

Introduction

This Order is established pursuant to the authority prescribed in 43 CFR Part 3160, formerly 30 CFR 221. Approval of all proposed exploratory, development, and service wells, and all required approvals of subsequent well operations and other lease operations, shall be obtained in accordance with 43 CFR 3162.3–1, 3162.3–2, 3162.3–3, 3162.3–4 and 3162.5–1, formerly 30 CFR 221.23, 221.27, 221.28, 221.29, or 221.30, as appropriate.

All wells approved for drilling under the provisions of this Order shall have been included in a drilling plan, as required under 43 CFR 3162.3–1(d), formerly 30 CFR 221.23(d).

A drilling plan may be submitted for a single well, or for several wells that are proposed to be drilled to the same zone within a field or area of geological and environmental similarity. Plans for additional development of the leasehold should be considered in the submittal.

However, approval of Form 3160–3, formerly 9–331C (Application for Permit to Drill, Deepen, or Plug Back) is required for each well, and in order to be complete an Application for Permit to Drill (APD) shall include all information required under 43 CFR 3162.3–1 (d) and (e). A technically and administratively complete APD includes, in addition to Form 3160–3, a drilling plan, evidence of bond coverage, a designation of operator, when appropriate, and such other information as may be required by applicable Order or Notice to evaluate the proposal. Refer to section III.G. for more detailed guidance on complete APD's.

Certain subsequent well operations and other lease operations involving additional surface disturbance shall be included in a plan submitted on Form 3160–5, formerly 9–331 (Sundry Notices and Reports On Wells), and approved under the provisions of this Order pursuant to 43 CFR 3162.3–2 or 3162.3–3, formerly 30 CFR 221.27 or 221.28, respectively.

A report on all subsequent well operations shall be filed on Form 3160–5, as prescribed in 43 CFR 3162.3–2. A notice of intention to abandon a well and a subsequent report of abandonment shall also be filed on Form 3160–5, as required by 43 CFR 3162.3–4.

All applications for approval under the provisions of this Order shall be submitted to the appropriate authorized officer of the Bureau of Land Management (BLM). "Authorized Officer" means any person authorized to perform the duties prescribed. To be advised of the proper BLM official and office with which to file an application, the lessee/operator may contact the appropriate District Manager of BLM having jurisdiction over lease operations in a particular area.

The lessee/operator shall comply with the following requirements:

I. *Accountability.* Lessees and operators have the responsibility to see that their exploration, development, production, and construction operations are conducted in a manner which (1) conforms with applicable Federal laws and regulations and with State and local laws and regulations to the extent that such State and local laws are applicable to operations on Federal or Indian leases; (2) conforms with the lease terms, lease stipulations, and conditions of approval; (3) results in diligent development and efficient resource recovery; (4) protects the lease from drainage; (5) affords adequate safeguards for the environment; (6) results in the proper reclamation of disturbed lands; (7) conforms with current available technology and practice; (8) assures that underground sources of fresh water will not be endangered by any fluid injection operation; and (9) otherwise assures the protection of the public health and safety. Lessees and operators shall be held fully accountable for their contractors' and subcontractors' compliance with the requirements of the approved permit and/or plan. Drilling/construction and associated operations shall not be conducted without prior approval of the authorized officer of BLM. BLM approval of the APD does not relieve the lessee and operator from obtaining any other authorizations required for operations on Federal and Indian lands.

II. *Special Situations.* Lessees and operators, as well as their contractors and subcontractors, shall not commence any operation or construction activity on a lease, other than cultural resource inventories and surveying and staking well locations on Federal and Indian lands, without the prior approval of the authorized officer of BLM, except for certain subsequent operations (see Section IV. of this Order). The terms and conditions of an approved permit and drilling plan, or other plan, shall not be

Published in 48 F.R. 48916 dated October 21, 1983 (Effective November 21, 1983) and Corrections published in 48 F.R. 56226 dated December 20, 1983.

altered unless BLM first has approved an amended or supplemental permit and/or plan covering any such modifications.

For proposed operations on a committed State or fee tract in a Federally supervised unit or communitized tract, the operator shall furnish a copy of the approved State permit to the authorized officer of BLM which will be accepted for record purposes. In addition, in cases where an access road to a non-Federal or non-Indian drillsite will cross leased Federal or Indian lands, the operator shall submit a surface use plan only for those portions of the access road on Federal or Indian lands where new construction or reconstruction will occur. Such plans shall be submitted to the authorized officer of BLM or appropriate Federal Surface Management Agency (SMA) and approval obtained prior to commencement of construction operations on the Federal or Indian surface. For privately owned surface, refer to section VII.

III. *Drilling Operations.*

A. *Surveying and Staking.* Surveying and staking may be done without advance approval from the authorized officer of BLM or other appropriate SMA and prior to the conduct of any required cultural resource inventory, except for lands administered by the Department of Defense or other lands used for military purposes, or where significant surface disturbance is likely to occur.

Lessees and operators are strongly encouraged to notify the appropriate SMA prior to entry upon the lands for the purposes of surveying and staking. Early notification will allow the SMA to apprise the lessees and operators of any existing conditions, knowledge of which could result in saving of time and money by both industry and Government. These include but are not limited to:

—Whether a cultural resource inventory is required;
—Presence of threatened or endangered species and/or critical habitats;
—Vehicle access restrictions; and/or
—Permitting requirements applicable to affected lands outside the leasehold boundary.

Where the surface is privately owned or held in trust of Indian benefit, the lessee/operator is responsible for making access arrangements with the private surface owner or the Bureau of Indian Affairs (BIA) and Indian tribe or Indian allottee(s) prior to entry upon the lands for the purpose of surveying and staking.

Staking shall include the well location, two 200-foot directional reference stakes, the exterior dimensions of the drill pad, reserve pit and other areas of surface disturbance, cuts and fills, and centerline flagging of new roads with road stakes being visible from one to the next. Cut and fill staking applies only to the wellsite, reserve pit, and, if off-location, any ancillary facilities.

B. *Material to be Filed.*

1. *Notice of Staking.* Prior to filing a complete APD, the lessee or operator may, at its option, file a Notice of Staking (Attachment A) with the authorized officer of BLM and appropriate office of any other involved SMA. In Alaska, a copy of the Notice shall also be sent to the appropriate Borough and/or Native Regional or Village Corporation when a subsistence stipulation is part of the lease.

The information contained in the Notice of Staking (NOS) will aid in identifying the need for associated rights-of-way and special use permits. If all required information is not included, the NOS shall be returned to the operator for modification.

2. *Application for Permit to Drill (APD).* Regardless of whether an NOS is filed, the lessee or operator shall file an APD. This application shall be administratively and technically complete prior to approval. The authorized officer of BLM shall advise the lessee or operator, within 7 working days of receipt of the application, as to whether or not the application is complete. If the application is complete, oral notification will suffice. If the application is not complete, notification to that effect shall be made in writing even though the lessee or operator may have already received oral notification. For purposes of written notification, Attachment B, Checklist For Applicant Notification, shall be mailed to the applicant within the 7-day period. The notification shall advise the lessee or operator of any defects that need correcting and of any additional information required. If the deficiencies are not corrected and/or the additional required information is not submitted within 45 days of the date of any oral or written notice (if no prior oral notice), the application shall be returned to the proponent.

Upon initiation of the APD process, the authorized officer of BLM shall consult with any other involved SMA and with other appropriate interested parties, and shall take one of the following actions within 30 days: (1) approve the application as submitted or with appropriate modifications or stipulations; (2) return the application and advise the lessee or operator of the reasons for disapproval; or (3) advise the lessee or operator, either in writing or orally with subsequent written confirmation, of the reasons why final action will be delayed and the date such final action is expected.

When the NOS option is followed, BLM shall strive to process the subsequent related APD within 10 days of the APD's receipt. However, in either situation, the process of reviewing the APD and advising the lessee or operator as to whether it is technically and administratively complete shall be considered a part of the overall APD processing time, i.e., 30 days in case of the APD option and 10 days if the NOS process is utilized. Operators are cautioned that with respect to any particular well, the option selected initially, of either filing both an NOS and a subsequent APD or only an APD, is to be followed and there shall be no shifting between the two options. If operators fail to maintain a consistent approach in this regard, the processing time already expended shall not be counted as part of the above 30-day period.

The processing of applications shall be given a high priority, and individual applications shall be processed according to the date the application is received by the appropriate BLM office. If it is not possible for BLM actions to be taken prior to lease expiration, the lessee or operator shall be advised, at least orally, prior to the lease expiration date, with all such notifications confirmed in writing. Said advice shall detail the reasons for delay so that the lessee or operator may take such appeal or other recourse to preserve the lease as is allowed by law and/or regulation. The appropriate BLM office telephone number and address shall be furnished to the lessee or operator with the earliest notification or advice.

C. *Conferences and Inspections.* An onsite predrill inspection shall be scheduled and conducted by the appropriate BLM office within 15 days of receiving the applicant's initially-filed document, i.e., either an NOS or a complete APD. In special circumstances, such as those areas enumerated in section III. D., the authorized officer of BLM may require the filing of a complete APD prior to the scheduling of an onsite predrill inspection. Representatives of the appropriate BLM office, the operator and other interested parties, such as any other involved SMA, the appropriate Alaska Borough and/or Native Regional or Village Corporation (when a subsistence stipulation is part of the lease), and the operator's principal dirt contractor and, if known, drilling contractor, shall attend the predrill inspection. When appropriate, the operator's surveyor and archeologist should also participate in the inspection. If any other involved SMA is not able to participate at the desired time, the inspection may be rescheduled provided it can be conducted within the 15-day period. When private surface is involved, the lessee or operator shall furnish the name, address and, if known, telephone number of the private surface owner on the NOS form or, in the surface use program, such information shall be attached to the APD. The BLM shall invite the surface owner to participate in the onsite inspection. This invitation will be extended as early as possible. However, a surface owner's inability to attend shall not delay the scheduled inspection unless BLM can conveniently reschedule the inspection within the 15-day time period. Joint inspections, i.e., those involving any other SMA, normally shall not be held for proposed in-fill well locations in developed fields if an appropriate environmental assessment (EA) already has been completed by BLM for the field or that area of the field. However, if staffing permits, a representative of BLM shall inspect those proposed locations where a joint predrill inspection is not held. At the time of onsite inspection, staking of the location shall have occurred, as specified in part A of this section.

The surface use and reclamation stipulations shall be developed during the onsite inspection and provided to the operator either at the location or within 5 working days from the date of the onsite inspection, barring unusual circumstances. These requirements shall be incorporated into the complete application, when filed, if the proponent is following the NOS option. Otherwise, these requirements shall be incorporated as conditions of the APD approval if an NOS is not filed. However, this does not preclude the possibility of additional conditions being imposed as a result of the review of the complete application.

D. *Processing Time Frames.* The following table summarizes the major time frames involved in processing most APD's:

APD Option

Action items	Days
Onsite inspection..............	Within 15 days after receipt of the APD.
Requirements to be imposed when APD is approved.	Developed onsite or within 5 working days thereafter.
Complete processing of APD	Within 30 days of the APD's receipt, provided that it is technically and administratively complete at the end of the 30-day period (includes the above 15-day and 5-day periods).

NOS Option

Action items	Days
Onsite inspection..............	Within 15 days after receipt of the NOS.
Requirements for inclusion in APD.	Furnished onsite or within 5 working days thereafter.
Complete processing of APD.	Within 10 days of the APD's receipt, provided that it is technically and administratively complete at the end of the 10-day period.

The above timeframes together comprise the total period during which BLM anticipates it will be able to process approximately 90 percent of all APD's. However, the 30 days may not run consecutively even when APD's are filed immediately after onsite inspections. For example, any time used by lessees or operators to correct deficiencies, or to prepare and submit information initially omitted from the application and which causes delays in processing beyond BLM's control, shall not be counted as part of the 30-day period. However, BLM shall continue to process applications up to the point where any missing piece of information or an uncorrected deficiency renders further processing impractical or impossible. Processing delays which extend the 30-day processing time are expected to occur in less than 5 percent of the cases. In addition, delays in conducting onsite inspections within 15 days of receiving an NOS (or an APD if an NOS is not filed), or delays in providing all stipulations to the operator within 5 working days of an onsite inspection may occur in less than 5 percent of the cases during periods of severe weather conditions and in areas where certain environmental concerns or jurisdictional conflicts exist.

Such areas include, but are not limited to:

1. Certain tribally or individually owned Indian trust or restricted lands.
2. Lands withdrawn for Federal reservoirs and Federal lands surrounding such reservoirs.
3. Lands in formally designated wilderness areas, lands formally proposed for such designation, lands within BLM Wilderness Study Areas or lands within Forest Service Further Planning Areas.
4. National Recreation Areas.
5. Wildife Refuges.
6. Certain Federal lands in Alaska.
7. Lands under jurisdiction of the Department of Defense.
8. Lands where a major problem exists with respect to cultural resources.
9. Lands known to contain threatened or endangered species and/or critical habitats.

The 30-day time frame for completion of the APD process may sometimes be exceeded where it is necessary to prepare an EA, and in all cases where it is necessary to prepare an environmental impact statement (EIS).

Lessees and operators are also cautioned that if the NOS/APD process begins less than 30 days prior to the desired date of commencement of drilling operations, the process may not be completed within the time desired.

E. *Cultural Resources Clearance.* Because consultation with the involved SMA and the State Historic Preservation Officer on matters that relate to the protection of historic and cultural resources is provided in BLM (36 CFR 800.4(a)(1)), lessees and operators should contact the involved SMA at least 15 days prior to the submission of an NOS or APD to determine whether any actions are necessary to locate and identify historic and cultural resources.

Survey work and a related report shall be required only if the involved SMA has reason to believe that properties listed, or eligible for listing, in the National Register of Historic Places (NRHP) are present in the area of potential effect. If such actions are necessary, lessees and operators are to complete the field work and submit the required report with the complete APD submittal, when following the NOS option, or not later than the 25th day of the 30-day processing period, when following the APD option.

Historic and cultural resources work on privately owned surface shall be undertaken only with the consent of the private surface owner. If the private surface owner refuses entry for that purpose, the lessee or operator shall use its best efforts to conduct its approved operations in a manner that avoids adverse effects on any properties which are listed, or may be eligible for listing, in the NRHP.

F. *Threatened and Endangered Species Clearance and Other Critical Environmental Concerns.* The involved SMA shall identify any threatened and endangered species and/or critical habitat problems and other environmental concerns, e.g., wilderness and wilderness study areas, wild and scenic rivers, etc., to minimize the possibility of drill site relocation. Should the SMA, if that agency is not BLM, be unable to carry out this responsibility, BLM shall do so. BLM shall identify any known or potential surface geological hazards. If any of these concerns exist, information in that regard shall be conveyed to the lessee/operator by BLM no later than when the surface use and reclamation stipulations are provided:

however, the lessee/operator can ensure earlier identification of potential conflict in these areas of concern by contacting the involved SMA prior to the submittal of an NOS or APD. The authorized officer of BLM should be timely apprised of any contacts with any other involved SMA.

G. Components of a Complete Application for Permit to Drill.

1. *Complete Application.* If an NOS is filed, the lessee/operator shall prepare and submit a complete APD within 45 days of the onsite inspection pursuant to the requirements of this subsection. Failure to timely submit an APD within this time frame may result in the lessee/operator having to repeat the entire process. The complete APD shall be submitted in triplicate to BLM, together with any additional copies required by the authorized officer. As provided in 43 CFR 3162.3–1(d), formerly 30 CFR 221.23(d), a complete application consists of:

(a) Form 3160–3, (b) a drilling plan (or reference thereto) containing information required by section G.4., below, (c) evidence of bond coverage as required by Department of the Interior regulations, (d) designation of operator, where necessary, and (e) such other information as may be required by applicable Orders and Notices.

The APD shall be signed by the lessee/operator official having the responsibility and authority to supervise and direct all activities related to the permit and who can be contacted in the event of a problem. The authorized officer may require additional information in unusual circumstances. However, where the proposed well is to be completed for injection purposes (disposal or production enhancement), lessees and operators also shall obtain an underground injection permit from the Environmental Protection Agency (EPA) or the State, where the State has achieved primacy. Any information submitted in support of obtaining that permit shall be accepted by the authorized officer to the extent that it satisfies the information submission requirements of this Order.

2. *Designation of Operator.* The lessee may authorize the actual conduct of operations in its behalf by designating another party as operator in a manner and form acceptable to the authorized officer. Lessees shall notify the authorized officer in writing whenever an existing designation of operator is cancelled. A designated operator cannot designate a different party as operator.

3. *Form 3160–3, formerly 9–331C. (Application for Permit to Drill, Deepen, or Plug Back).* This Form shall be completed in full and submitted to the authorized officer together with all necessary information referred to under section G.1. above. The following points a. through f. are specific as to appropriate information requirements of the Form and shall be stated thereon, or as an attachment thereto, for each proposed well:

a. A well location plat shall be attached depicting the proposed location, as determined by a registered surveyor, in feet and direction from the nearest section lines of an established public land survey or, in areas where there are no public land surveys, by such other method as is acceptable to the authorized officer. The plat shall be signed by the surveyor, certifying that the location has, in fact, been staked on the grounds as shown on the plat.

b. The elevation given shall be the above-sea-level datum of the unprepared ground.

c. The type of drilling tools to be utilized shall be stated.

d. The proposed casing program shall include the size, grade, weight, type of thread and coupling, and setting depth of each string, and whether it is new or used.

e. The amount and type of cement, including additives to be used in setting each casing string, shall be described. If stage-cementing techniques are to be employed, the setting depth of the stage collars and amount and type of cement, including additives, to be used in each stage shall be given. The expected linear fill-up of each cemented string or each stage, when utilizing stage-cementing techniques, shall be provided.

f. The anticipated duration of the total operation shall be given in addition to the anticipated starting date.

A copy of the approved Form 3160–3 and the pertinent drilling plan, along with any conditions of approval, shall be available at the drillsite to authorized or delegated representatives of the United States whenever active construction, drilling, or completion operations are under way.

4. *Drilling Plan.* A drilling plan in sufficient detail to permit a complete appraisal of the technical adequacy of, and environmental effects associated with, the proposed project shall be prepared and either submitted with each copy of Form 3160–3, or referenced thereon if it is already on file with BLM or is being submitted for more than one well. The plan shall be developed in conformity with the provisions of the lease, including attached stipulations, and the guidelines provided by this Order or other land use documents.

Each drilling plan shall contain a description of the drilling program and surface use program. The BLM shall send a copy of appropriate parts of the plan to any other involved SMA and may send a copy of the plan to other interested Federal, State, and local agencies. All information identified as proprietary by the applicant pursuant to 43 CFR 3162.8, formerly 30 CFR 221.33, shall first be deleted. The drilling program shall include a description of the pressure control system and circulation mediums, the testing, logging and coring program, pertinent geologic data, and information on expected problems and hazards. The drilling program shall be reviewed for adequacy by BLM. If the program is considered inadequate, BLM shall require modification of the drilling program.

The surface use program shall contain a description of the road and drill pad location and construction methods for containment and disposal of waste material, and other pertinent data as the authorized officer may require. The surface use program shall provide for safe operations, adequate protection of surface resources and uses and other environmental components, and shall, for Federal and Indian surface, include adequate measures for reclamation of disturbed lands no longer needed for either drilling or other subsequent operations. Where the surface is privately owned, the authorized officer may require the submission of the reclamation plan between the lessee or operator and landowner in order to determine if it is adequate to protect nearby Federal and Indian surface from significant impacts generated by the operation. In developing the surface use program, the lessee or operator shall make use of such information as is available from the involved SMA concerning the surface resources and uses, environmental considerations, and local reclamation procedures. The surface use program shall be reviewed for adequacy by BLM and by any other involved SMA. The criteria/standards set forth in the Surface Operating Standards for Oil and Gas Exploration and Development Handbook, Second Edition, August 1978, or as subsequently revised, generally shall be utilized in evaluating the adequacy of a proposed surface use plan. If the surface use program is considered inadequate, BLM shall, in consultation with any other involved SMA, require modifications or amendment of the program or otherwise set forth stipulations or conditions of approval as are necessary for the protection of surface resources/uses and the environment, and for the reclamation of the areas to be disturbed when no longer needed for operational purposes.

a. *Guidelines for Preparing Drilling Program.* The following information shall be included as part of the drilling plan but shall be made specific to each well if the plan covers more than one well:

(1) Estimated tops of important geologic markers.

(2) Estimated depths at which the top and the bottom of anticipated water (particularly fresh water), oil, gas or other mineral-bearing formations are expected to be encountered and the lessee's or operator's plans for protecting such resources.

(3) Lessee's or operator's minimum specifications for pressure control equipment to be used and a schematic diagram thereof showing sizes, pressure ratings (or API series), and the testing procedures and testing frequency.

(4) Any supplementary information more completely describing the drilling equipment and casing program as set forth on Form 3160–3.

(5) Type and characteristics of the proposed circulating medium or mediums to be employed in drilling, the quantities and types of mud and weighting material to be maintained, and the monitoring equipment to be used on the mud system.

(6) The anticipated type and amount of testing, logging, and coring.

(7) The expected bottom hole pressure and any anticipated abnormal pressures or temperatures or potential hazards, such as hydrogen sulfide, expected to be encountered, along with contingency plans for mitigating such identified hazards.

(8) Any other facets of the proposed operation which the lessee or operator wishes to point out for BLM's consideration of the application.

(b) *Guidelines for Preparing Surface Use Program.* In preparing this program, the lessee or operator shall submit maps, plats, and narrative descriptions which adhere closely to the following (maps and plats should be of a scale no smaller than 1:24,000 unless otherwise stated below):

(1) *Existing Roads.* A legible map (USGS topographic, county road, Alaska Borough, or other such map), labeled and showing the access route to the location, shall be used for locating the proposed well site in relation to a town (village) or other locatable point, such as a highway or county road, which handles the majority of the through traffic to the general area. The proposed route to the location, including appropriate distances from the point where the access route exits established roads, shall be shown. All access roads shall be appropriately labeled. Any plans for improvement and/or a statement that existing roads will be maintained in the same or better condition shall be provided. Existing roads and newly constructed roads on surface under the jurisdiction of an SMA shall be maintained in accordance with the standards of the SMA.

Information required by items (2), (3), (4), (5), (6), and (8) of this subsection also may be shown on this map if appropriately labeled or on a separate plat or map.

(2) *Access Roads to Be Constructed and Reconstructed.* All permanent and temporary access roads that are to be constructed, or reconstructed, in connection with the drilling of the proposed well shall be appropriately identified and submitted on a map or plat. Width, maximum grade, major cuts and fills, turnouts, drainage design, location and size of culverts and/or bridges, fence cuts and/or cattleguards, and type of surfacing material, if any, shall be stated for all construction. In addition, where permafrost exists, the methods for protection from thawing must be indicated. Modification of proposed road design may be required during the onsite inspection.

Information also should be furnished to indicate where existing facilities may be altered or modified. Such facilities include gates, cattleguards, culverts, and bridges which, if installed or replaced, shall be designed to adequately carry anticipated loads.

(3) *Location of Existing Wells.* It is recommended that this information be submitted on a map or plat and include all wells (water, injection or disposal, producing, and drilling) within a 1-mile radius of the proposed location.

(4) *Location of Existing and/or Proposed Facilities if Well Is Productive.*

(a) *On well pad*—A map or plat shall be included showing, to the extent known or anticipated, the location of all production facilities and lines to be installed if the well is successfully completed for production.

(b) *Off well pad*—A map or plat shall be included showing to the extent known or anticipated, the existing or new production facilities to be utilized and the lines to be installed if the well is successfully completed for production. If new construction, the dimensions of the facility layout are to be shown.

If the information required under (a) or (b) above is not known and cannot be accurately presented and the well subsequently is completed for production, the operator shall then comply with section IV. of this Order.

(5) *Location and Type of Water Supply (Rivers, Creeks, Springs, Lakes, Ponds, and Wells).* This information may be shown by quarter-quarter section on a map or plat, or may be a written description. The source and transportation method for all water to be used in drilling the proposed well shall be noted if the source is located on Federal or Indian lands or if water is to be used from a Federal or Indian project. If the water is obtained from other than Federal or Indian lands, only the location need be identified. Any access roads crossing Federal or Indian lands that are needed to haul the water shall be described in items G.4.b. (1) and (2), as appropriate. If a water supply well is to be drilled on the lease, it shall be so stated under this item, and the authorized officer of BLM may require the filing of a separate APD.

(6) *Construction Materials.* The lessee or operator shall state the character and intended use of all construction materials, such as sand, gravel, stone and soil material. If the materials to be used are Federally-owned, the proposed source shall be shown by either quarter-quarter section on a map or plat, or a written description. The use of materials under BLM jurisdiction is governed by 43 CFR 3610.2–3. The authorized officer shall inform the lessee or operator if the materials may be used free of charge or if an application for sale is required. If the materials to be used are Indian owned or under the jurisdiction of any SMA other than BLM, the specific tribe and or Area Superintendent of BIA, or the appropriate SMA office shall be contacted to determine the appropriate procedure for use of the materials.

(7) *Methods for Handling Waste Disposal.* A written description shall be given of the methods and locations proposed for safe containment and disposal of each type of waste material (e.g., cuttings, garbage, salts, chemicals, sewage, etc.) that results from the drilling of the proposed well. Likewise, the narrative shall include plans for the eventual disposal of drilling fluids and any produced oil or water recovered during testing operations.

(8) *Ancillary Facilities.* The plans, or subsequent amendments to such plans, shall identify all ancillary facilities such as camps and airstrips as to their location, land area required, and the

methods and standards to be employed in their construction. Such facilities shall be shown on a map or plat. The approximate center of proposed camps and the center line of airstrips shall be staked on the ground.

(9) *Well Site Layout.* A plat of suitable scale (not less than 1 inch = 50 feet) showing the proposed drill pad and its approximate location with respect to topographic features is required. Cross section diagrams of the drill pad showing any cuts and fills and the relation to topography are also required. The plat shall also include the approximate proposed location of the reserve and burn pits, access roads onto the pad, turnaround areas, parking areas, living facilities, soil material stockpiles, and the orientation of the rig with respect to the pad and other facilities. Plans, if any, to line the reserve pit shall be detailed.

(10) *Plans for Reclamation of the Surface.* The program for surface reclamation upon completion of the operation, such as configuration of the reshaped topography, drainage system, segregation of spoil materials, surface manipulations, waste disposal, revegetation methods, and soil treatments, plus other practices necessary to reclaim all disturbed areas, including any access roads or portions of well pads when no longer needed, shall be stated. An estimate of the time for commencement and completion of reclamation operations, dependent on weather conditions and other local uses of the area, shall be provided.

(11) *Surface Ownership.* The surface ownership (Federal, Indian, State or private) at the well location, and for all lands crossed by roads which are to be constructed or upgraded, shall be indicated. Where the surface of the well site is privately owned, the operator shall provide the name, address and, if known, telephone number of the surface owner, unless previously provided.

(12) *Other Information.* The lessee or operator is encouraged to submit any additional information that may be helpful in processing the application.

(13) *Lessee's or Operator's Representative and Certification.* The name, address and telephone number of the lessee's or operator's field representative shall be included. The lessee or operator submitting the APD shall certify as follows:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which currently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and that the work associated with operations proposed herein will be performed by ———————— and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

Date ————————.
Name and Title ————————.

5. *Environmental Review Requirements.*

When an onsite inspection is conducted, it shall be made by representatives of the authorized officer and the operator, and other interested parties such as the involved SMA, the appropriate Alaska Borough and/or Native Regional or Village Corporation (when a subsistence stipulation is part of the lease), and the operator's principal dirt contractor and, if known, drilling contractor. It is recommended that, when appropriate, the operator's surveyor and archeologist should also participate in the inspection. The purpose of this inspection shall be to ensure the staked location, access roads and other areas proposed for surface disturbance are geologically and environmentally acceptable, giving appropriate consideration to all applicable Federal laws and regulations. Lessees and operators are encouraged to designate their future drilling sites so that several locations may be inspected at one time.

a. *Federal Responsibilities.* When an inspection is made, the information obtained shall be utilized by BLM in appraising the environmental effects associated with the proposed action and in preparing pertinent portions of the required environmental documentation. As the approving agency, BLM has the lead responsibility for completing the environmental review process and establishing the terms and conditions under which the proposed action may be approved. The conduct of the environmental review process, under the Department of the Interior's implementing procedures pursuant to the National Environmental Policy Act, will result in the preparation of a Record of Review (ROR) and/or an EA, consistent with pertinent regulations and procedures. This review shall identify the probable and potential environmental impacts associated with the proposal and methods for mitigating these impacts and shall be the basis of the approving official's determination as to whether approval of the proposed activity would or would not constitute a major Federal action significantly affecting the quality of the human environment as defined by section 102(2)(C) of the National Environmental Policy Act of 1969. A "would constitute" determination shall necessitate the preparation of an EIS. In that case, final action on the APD shall not be taken until the EIS and Record of Decision are completed.

b. *Other Considerations.* Lessees and operators are strongly encouraged to file their NOS and/or complete APD at least 30 days in advance of the time when they wish to commence operations and to consult with the involved SMA as early as possible to identify potential areas of concern (see sections III. E. and F.).

IV. *Subsequent Operations.*
Subsequent operations shall be conducted in accordance with 43 CFR Part 3160, formerly 30 CFR 221. However, where the proposed subsequent operation will result in the well being converted for injection purposes (disposal or production enhancement), lessees and operators also shall obtain an underground injection permit from EPA or the State, where the State has achieved primacy. Any information submitted in support of obtaining that permit shall be accepted by the authorized officer of BLM to the extent that it satifies the information submittal requirements of this Order.

A. *Well and Production Operations.* Before conducting further well operations that involve change in the original plan, a detailed written statement of the work shall be filed on Form 3160-5 or 3160-3, as appropriate, with the authorized officer and approval obtained before the work is started. These operations include redrilling, deepening, performing casing repairs, plugging-back, altering casing, performing nonroutine fracturing jobs, recompleting in a different interval, performing water shut-off, and converting to injection or disposal. Within 30 days of the completion of such operations, a subsequent report shall be filed on Form 3160-5 and, if the well is recompleted, a recompletion report on Form 3160-4, pursuant to 43 CFR 3162.3-2 and the information collection approval note, formerly 30 CFR 221.27 and 221.2-1.

Unless additional surface disturbance is involved and so long as the operations conform to the standard of prudent operating practice, no prior approval is required for routine fracturing or acidizing jobs, or recompletion in the same interval, but a subsequent report of these operations shall be filed on Form 3160-5, formerly 9-331, within 30 days of completion, pursuant to 43 CFR 3162.3-2 and the information collection approval note, formerly 30 CFR 221.27 and 221.2-1.

Neither prior approval nor a subsequent report is required for well clean-out work, routine well maintenance (such as pump, rods, and tubing work), or for repair, replacement, or modification of surface production equipment, provided no additional surface disturbance is involved. However, the modification of any production, treating, and measurement facilities shall require the submission of a revised schematic diagram within 30 days of the completion of such operations, pursuant to 43 CFR 3162.7–2, formerly 30 CFR 221.34.

B. *Surface Disturbing Operations.* Pursuant to 43 CFR 3162.3–2 and 3162.3–3, formerly 30 CFR 221.27 and 221.28, lessees and operators shall submit, for the approval of the authorized officer, a proposed plan of operations on Form 3160–5 prior to undertaking any subsequent new construction, reconstruction, or alteration of existing facilities including, but not limited to, roads, emergency pits, firewalls, flowlines, or other production facilities on any lease when additional surface disturbance will result. If, at the time the original APD was filed, the lessee or operator elected to defer submitting information for item III.G.4.b.(4), "Location of Existing and/or Proposed Facilities if Well is Productive," the lessee or operator shall supply this information for approval prior to construction and installation of the facilities. The authorized officer, in consultation with any other involved SMA, may require a field inspection before approving the proposal.

C. *Emergency Repairs.* Emergency repairs may be conducted without prior approval provided that the authorized officer is promptly notified. Sufficient information shall be submitted to permit a proper evaluation of any resultant surface disturbing activities as well as any planned accommodations necessary to mitigate potential adverse environmental effects.

D. *Environmental Review.* The environmental review procedures discussed in section III.G.5. of this Order shall also apply to subsequent operations which involve additional surface disturbance.

V. *Well Abandonment.* No well abandonment operations may be commenced without the prior approval of the authorized officer. In the case of newly drilled dry holes or failures and in emergency situations, oral approval may be obtained from the authorized officer subject to prompt written confirmation. For old wells not having an approved abandonment plan, a sketch showing the disturbed area and roads to be abandoned, along with the proposed reclamation measures, shall be submitted with Form 3160–5. On Federal and Indian surface, the appropriate SMA may request additional reclamation measures at abandonment, which normally shall be made a part of BLM's approval of abandonment. Within 30 days following completion of the well abandonment, the lessee or operator shall file with the authorized officer of BLM a Subsequent Report of Abandonment on Form 3160–5, in accordance with 43 CFR Part 3160, formerly 30 CFR Part 221. Upon completion of reclamation operations, the lessee or operator shall notify the authorized officer when the location is ready for inspection, via an additional Form 3160–5. Final abandonment shall not be approved until the surface reclamation work required by the approved drilling permit or approved abandonment notice has been completed to the satisfaction of the involved SMA.

VI. *Water Well Conversion.* The complete abandonment of a well which has encountered usable fresh water shall not be approved if the SMA or surface owner wants to acquire the well. If, at abandonment, the SMA or surface owner elects to assume further responsibility for the well, the SMA or surface owner, as appropriate, shall reimburse the lessee or operator for the cost of any recoverable casing or wellhead equipment which is to be left in or on the hole solely because it is to be completed as a water well. The lessee or operator shall abandon the well to the base of the deepest fresh water zone of interest, as required by the authorized officer, and shall complete the surface cleanup and reclamation, as required by the approved drilling permit or approved abandonment notice, immediately upon completion of the conversion operations.

VII. *Privately Owned Surface.*—A. *Federal oil and gas leases.* Where the well site and access road surface are privately owned or are held in trust for Indian benefit, the lessee or operator is responsible for reaching an agreement with BIA or the private surface owner as to the requirements for the protection of surface resources and reclamation of disturbed areas and/or damages in lieu thereof. However, if the authorized officer or any other involved SMA determines that the surface of Federal or Indian-owned lands in proximity to the proposed well site or access road on private surface will be significantly affected, the lessee or operator may be required to furnish a copy of any existing agreement between the lessee or operator and the surface owner to the authorized officer. If the agreement on private surface is considered inadequate to protect the surface of adjacent Federal or Indian-owned lands, the authorized officer or other involved SMA may prescribe additional measures to protect the adjacent Federal or Indian lands. In the event there is no agreement between the surface owner and the operator, the operator may comply with the provisions of the law or the regulations governing the Federal or Indian right of reentry to the surface (See Subpart 3814 of this title) and the authorized officer may then proceed to issue the permit.

B. *Indian oil and gas leases.* Where the well site and access road surface are privately owned or are held in trust for an Indian or Indian tribe other than the owner of the oil and gas rights, the lessee or operator is responsible for reaching an agreement with the surface owner (or the BIA if the surface is held in trust for numerous or unlocatable Indian owners) as to the requirement for the protection of surface resources and reclamation of disturbed areas and/or damages in lieu thereof. However, if the authorized officer or any other involved SMA determines that the surface of

Federal or Indian-owned lands in proximity to the proposed well site or access road on private surface will be significantly affected, the lessee or operator may be required to furnish the authorized officer a copy of any existing agreement between the lessee or operator and the surface owner. If the agreement on private surface is considered inadequate to protect the surface of adjacent Federal or Indian-owned lands, the authorized officer or other involved SMA may prescribe additional measures to protect the adjacent Federal or Indian-owned lands. In the event there is no agreement between the surface owner and the operator, the authorized officer may permit the operator to conduct operations if he/she determines that: (1) a good faith effort has been made by the operator to reach agreement with the surface owner; (2) adequate security is posted, in the form of a bond, escrow account or by other means, to compensate the surface owner for any damages; and (3) there is no legal obstacle to conducting operations in the absence of surface owner consent.

VIII. *Reports and Activities Required After Well Completion.* Within 30 days after the well completion, the lessee or operator shall furnish 2 copies of Form 3160-4, formerly 9-330 (Well Completion or Recompletion Report and Log) to the authorized officer. However, no later than the fifth business day after any well begins production anywhere on a lease site or allocated to a lease site, or resumes production in the case of a well that has been off production for more than 90 days, the lessee or operator shall notify the authorized officer of the date on which production has begun or resumed.

The notification may be provided orally if promptly confirmed in writing.

Dated: August 9, 1983.

Jeffrey F. Zabler,

Acting Assistant Director for Fluid Leasable Minerals.

Approved:

Dated: August 17, 1983.

Arnold E. Petty,

Acting Associate Director, Bureau of Land Management.

BILLING CODE 4310-84-M

Attachment A

SAMPLE FORMAT

Sample

NOTICE OF STAKING
(Not to be used in place of
Application for Permit to Drill Form 3160-3)

6. Lease Number

1. Oil Well ☐ Gas Well ☐ Other (Specify)

7. If Indian, Allottee or Tribe Name

2. Name of Operator:

8. Unit Agreement Name

3. Name of Specific Contact Person:

9. Farm or Lease Name

4. Address & Phone No. of Operator or Agent

10. Well No.

5. Surface Location of Well

Attach:
a) Sketch showing road entry onto pad, pad dimensions, and reserve pit.
b) Topographical or other acceptable map showing location, access road, and lease boundaries.

11. Field or Wildcat Name

12. Sec., T., R., M., or Blk and Survey or Area

15. Formation Objective(s)

16. Estimated Well Depth

13. County, Parish or Borough

14. State

17. Additional Information (as appropriate; shall include surface owner's name, address and, if known, telephone number)

18. Signed____________________ Title____________________ Date__________

Note: Upon receipt of this Notice, the Bureau of Land Management (BLM) will schedule the date of the onsite predrill inspection and notify you accordingly. The location must be staked and access road must be flagged prior to the onsite.

Operators must consider the following prior to the onsite:
- a) H_2S Potential
- b) Cultural Resources (Archeology)
- c) Federal Right of Way or Special Use Permit

IMPORTANT: SEE REVERSE SIDE FOR INSTRUCTIONS

BILLING CODE 4310-84-C

Instructions for Preparation of Attachment A

General: This provides notice to the Bureau of Land Management (BLM) that staking has been (or will be) completed for well locations on Federal or Indian leases and serves as a request to schedule an onsite inspection. The original and one copy of this notice, together with a map and sketch, should be submitted to the appropriate BLM office.

Any item not completed may be justification for not promptly scheduling the onsite inspection.

Specific Considerations: Items included herein should be reviewed and evaluated thoroughly prior to the onsite. These items affect placement of location, road, and facilities. Failure to be prepared with complete, accurate information at the onsite may necessitate later re-evaluation of the site and an additional onsite inspection.

a. H_2S Potential: Prevailing winds, escape routes, and placement of living quarters must be considered.

b. Cultural Resources: Archeological surveys, if required, should be done prior to, during or immediately following the onsite. Changes in location due to subsequent archeological findings may require an additional onsite. Contact involved Surface Management Agency (SMA) for detailed site specific requirements.

c. Federal Right-of-Way or Special Use Permit: Access roads outside the leasehold boundary which cross Federal lands will require a right-of-way grant or special use permit and should be discussed with the BLM or other involved SMA at the time of filing the Notice of Staking.

Supplemental Checklist: The following items, if applicable, should be submitted with or prior to the Application For Permit to Drill (APD) to ensure timely approval of the application. Contact the BLM regarding specific requirements relating to each item.

a. Bonding.

b. Designation of Operator.

c. Report of Cultural Resources/Archeology.

d. H_2S Contingency Plan.

e. Status of Plan of Development and Designation of Agent for wells in Federal units.

f. Federal Right-of-Way (BLM) or Special Use Permit (Forest Service).

Timetable: The onsite inspection will be scheduled and conducted by the BLM within 15 days after receipt of this notice. Surface protection and rehabilitation requirements will be made known to the operator by the BLM during the onsite or no later than 5 working days from the date of inspection, barring unusual circumstances. These requirements are to be incorporated into the complete APD. However, this does not exclude the possibility of additional conditions of approval being imposed.

Attachment B

Date:—————————————

Bureau of Land Management

Checklist for Applicant Notification:

Receipt and Acceptability of Application for Permit To Drill (APD)

Lease No.——————
Well No ——————
Lessee——————
Operator——————
Date APD Received——————

1.—APD complete as submitted.

2.—APD is deficient in the following area(s) *and* (see items 3, 4, or 5 below):

—Designation of Operator
—Designation of Agent
 under——————unit agreement
—Bonding
—Cultural Resources Report (depends on Federal Surface Management Agency's Requirements
—Form 3160-3, formerly 9-331C
—Drilling Plan
—Other
(Refer to attachment(s) for any specifics)

3.—APD is retained; to be processed upon receipt of further information as noted above.

4.—APD is being processed; final action pending receipt of further information as noted above.

5.—APD is returned for the following reasons:——————

————————————

————————————

Note:— A returned APD herewith may be resubmitted when convenient at which time it will be reviewed again for technical and administrative completeness.

A retained but deficient APD must be brought to a technically and administratively acceptable level of completion within 45 days of the date of this notice or the application will be returned unapproved.

[FR Doc. 83-28642 Filed 10-20-83; 8:45 am]
BILLING CODE 4310-84-M

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

43 CFR Part 3160

[AA-630-87-4111-02; Circular No. 2613]

Onshore Oil and Gas Operations; Federal and Indian Oil and Gas Leases; Onshore Oil and Gas Order No. 2, Drilling Operations

AGENCY: Bureau of Land Management, Interior.

ACTION: Final rulemaking.

SUMMARY: This final rulemaking provides for the issuance of Onshore Oil and Gas Order No. 2 under the provisions of 43 CFR Subpart 3164. This order implements and supplements the requirements found in 43 CFR Subpart 3160 as they apply to drilling operations, specifically, those requirements found at §§ 3162.3–1, 3162.3–4, 3162.4–1, 3162.4–2, 3162.5–1, 3162.5–2, and 3162.5–3. This Order addresses the Bureau of Land Management's uniform national standards for the minimum levels of performance expected from lessees and operators when conducting drilling operations on Federal and Indian (except Osage Tribe) lands. The Order also details enforcement actions and prescribes the manner in which variances may be obtained from specific standards. The Bureau's specific existing internal guidelines on the subject of drilling operations have never been published formally in a Notice to Lessees and Operators, so that this Order has no direct predecessor.

EFFECTIVE DATE: December 19, 1988.

ADDRESS: Inquiries or suggestions should be sent to: Director (610), Bureau of Land Management, Room 601, Premier Building, 1800 C Street NW., Washington, DC 20240.

FOR FURTHER INFORMATION CONTACT: Howard A. Lemm, (801) 524–3000 or Robert Kent, (202) 653–2174.

SUPPLEMENTARY INFORMATION: Section 3164.1 of 43 CFR Part 3160 provides for the issuance of Onshore Oil and Gas Orders when needed to implement and supplement the regulations in that part. All Orders are promulgated through the rulemaking process and, when issued in final form, apply on a nationwide basis. This final rulemaking contains such an Order, No. 2, Drilling Operations.

This Order establishes specific and detailed requirements along with minimum standards covering well control during drilling, casing and cementing, drilling mud and the circulating system, drill stem testing, special drilling operations, related surface use, and the abandonment of drilling operations. These operation standards will be used in conjunction with the broad requirements of Part 3160 and Onshore Oil and Gas Order No. 1. This Order also classifies all violations as minor or major. In addition, the Order establishes the process for initially classifying a violation as minor and reissuing the violation as major if not corrected and continued drilling has increased the adverse impact.

This Order sets standards designed to be minimums for drilling operations at specific pressures under differing conditions and in different parts of the country. It is recognized that, under some conditions, additional requirements will be routinely imposed, or general variances to specific requirements will be granted, either in approval documents or on a field basis. In some instances, the Order relies on existing standards prepared by the American Petroleum Institute, the Occupational Safety and Health Administration, the Texas Railroad Commission, and other agencies. These standards are generally accepted in the oil and gas industry.

The proposed rulemaking for this Onshore Oil and Gas Order No. 2 was published in the **Federal Register** on August 13, 1987 (52 FR 30310). The comment period ended on October 13, 1987. A total of 36 comments were received: 24 from business entities, 8 from offices of Federal agencies, 2 from trade associations, 1 from an Indian tribe, and 1 from an individual. The comments are discussed in the appropriate portions of this preamble where the provisions of the Order they relate to are discussed.

Discussion of II Definitions

The proposed Order defined the term "freeboard". This term has been removed from the final rulemaking because the only reference to it was in the provision on minimum standards for surface use, which has also been removed from the final rulemaking as explained elsewhere in this preamble.

The term "function test" has been changed to "functionally operated" for clarification. At the suggestion of a comment, the word "wellbore" has been added to describe the type of pressures under discussion.

The term "H_2S trim" was removed in the final rulemaking since the final rulemaking now contains no reference to this term.

Several comments suggested changes to the term and definition for "High Pressure Zone" to include low pressure or lost circulation zones. This term has been replaced throughout the Order by "Abnormal Pressure Zone", which refers to low pressure as well as high pressure, and the definition modified to reflect this distinction.

The term "fresh water" has been removed from the Definitions and replaced by the term "usable water" wherever it occurred in the text. This Order requires the protection of usable water, which includes fresh water. The standard for "usable water" of 10,000 ppm. of total dissolved solids is based on the regulatory definition by the Environmental Protection Agency of "drinking water" at 40 CFR 144.3.

A new definition for the term "lessee" is incorporated in this final rulemaking to reflect a change in definition of the term in 43 CFR Part 3160 since the Draft Order was published for comment.

Several comments on the definition of "mud for plugging purposes" suggested that it too restrictive. By using this term, the proposed Order did not intend to exclude the use of other materials. Therefore, the final rulemaking has adopted these comments and the definition has been expanded to include other materials. Consultation with the authorized officer is encouraged to determine the need for mud for plugging purposes to assure that usage is consistent with environmental concerns and established operating practices.

The term "neat cement" does not appear in the final rulemaking, and the term has been removed from the definitions.

The definition for "tagging the plug" has been modified at the suggestion of comments to remove the reference to an amount of weight not to be exceeded when placing the weight of the drill pipe on the plug. This modification was made because no real purpose was served by placing a maximum on the amount of weight placed on the plug.

At the suggestion of a comment, the definition for "targeted tee or turn" has been modified slightly for increased clarity.

The definition of "test plug" is also amended for clarity.

The term "exploratory well" has been redefined to improve the description of what constitutes an exploratory (wildcat) well.

Seven additional terms have been added to the Definitions section in this final rulemaking in response to comments received. The definition chosen for each of these terms was either as defined by a referenced regulation or, when this was not the case, generally by the most commonly used definition incorporating oil field vernacular.

Discussion of III Requirements

A comment was received requesting clarification of the introductory portion of each "Requirement" section and the specific minimum standards that are then listed below each of these requirement sections. The purpose of the Requirements section is to provide direction as to what is to be included in the Application for Permit to Drill (APD), as well as to provide general direction as to the applicability of the minimum standards that follow each of these sections. Neither the Requirements sections nor the Minimum Standards sections are intended to stand alone. However, each section has been reviewed, and clarification added as appropriate.

A. Well Control Requirements

This portion of the rulemaking contains perhaps the most detailed and technical section of the Onshore Order for Drilling Operations. The principal reason for this is the need to establish minimum standards by pressure rating the equipment being utilized. Therefore, even though there is duplication in some of the minimum standards as they uniformly apply to 2M, 3M, 5M, and 10M and 15M systems, substantial differences in usage of equipment require each pressure rating to be listed separately.

A comment requested a definition of the term "operational" used in section III A.1. A definition for this term has been included in the final rulemaking in the Definitions section.

Other comments were received on this same section (III.A.1.) concerning the criteria for establishing the pressure rating of the well control equipment to be used. In the draft order these criteria were established "assuming no fluid (except gas) in the hole". The oil industry comments received on this section were critical of the criteria as being too restrictive and suggestive of a worst-case scenario. While a worst-case scenario represents a legitimate method, used by a number of regulatory agencies and energy companies in developing their design criteria for well control, a compromise has been adopted in the final rulemaking because assuming a totally evacuated hole (except gas) is too extreme to use for establishing minimum standards.

The compromise wording adopted assumes a "partially evacuated hole with a pressure gradient of 0.22 psi/ft." as the criteria for system design. This adopted pressure gradient parameter assumes a partially evacuated hole whereby the hydrostatic pressure gradient is approximately double that assumed in the draft order. It also represents approximately one-half the hydrostatic pressure of a column of water. In addition to being an easily remembered specification, it also represents an appropriate compromise and a legitimate minimum design criterion.

A comment was received concerning section III.A.2. suggesting that the Order should establish well control training provisions. Although this concept has merit, well control training for operators is not within the identified scope of this rulemaking and accordingly is not addressed here. However, this comment has been referred to appropriate BLM personnel for separate consideration.

Minimum standard III.A.i. has been editorially modified for clarity by adding the words "well control" in describing the device required as suggested in the comments received.

The minimum standard III.A.ii. for 2M systems has been modified as suggested in comments to clarify that an "annular preventer, double ram or two rams with one being a blind and one being a pipe ram," is required. This was the intention of the minimum standard contained in the draft Order, but as written could have been understood to require 4 rams, with 1 being a double, and including a blind and a pipe ram as well.

The minimum standard for III.A.iii. received several comments. Some of these noted that 3M systems are the ones most commonly available in some regions. Their use, it was noted, was predicted on availability rather than necessity. Compliance with the provisions of this Order is considered a minimum requirement. As stated in I.D.1., higher rated equipment may be used to meet and maintain these standards without being held to the higher standards normally applied to such equipment. Therefore, if the pressure expected is in the 2M category, the operator should state this in the application. The use of equipment of a higher pressure rating than that approved does not subject the operator to the specifications for the higher pressure rated equipment. Operators are reminded to base requests or equipment approval on this understanding. Since I.D.1. clearly addresses the above mentioned concerns, no further explanation or modification was deemed necessary in the text of the final rulemaking. It should be noted that if drilling were to occur in an area where a 2M system was appropriate and approved, the use of a 3M system without, for example, an annular preventer (which is not required in a 2M system) is, of course, fully acceptable. Accordingly, along with the more liberal assumption of a .22 psi/ft fluid in the hole rather than fully evacuated, as explained earlier, the standard is now appropriate without further modification and as such is consistent with API RP53.

Another comment on this section addressed the draft minimum standard for a drilling spool with side outlet connections. The comment stated that this was too restrictive because the blowout preventer (BOP) itself could have side outlets and functions in the same manner as the drilling spool. The final rulemaking has been modified to allow for this type of equipment and usage not only for a 3M system but for higher rated pressure systems as well.

The minimum standard in the final rulemaking for 2 kill line valves was modified from the draft as suggested by a comment to permit one of the two valves to be a check valve to clarify the intent of the Order.

The minimum standard for safety valves and subs was modified as suggested by comments to clarify intent and now reads "safety valve and subs to fit all drill string connections in use". This has been modified similarly in the requirements for higher rated systems as well.

The term "BOPE" was added to the minimum standard for clarification. It now reads, "All BOPE connections subject to well pressure shall be flanged, welded, or clamped." Connections not subjected to well pressure in the cellar, for example, or those connections upstream from check valves, etc., could be hammer unions as some comments suggested. The minimum standard addresses only those connections directly subject to well pressure conditions. This same modification has been made to the minimum standards for higher rated systems.

The minimum standards for 5M systems in section III.A.iv. generated numerous comments, many of which addressed similar items and nearly all of which suggested minor changes for clarity. As noted below, these changes were for the most part incorporated in this final rulemaking.

The second item in the minimum standards for 5M systems has been completely reworded at the suggestion of comments and broken into 2 separate standards to improve clarity and expound the original intent concerning the appropriate usage of a second pipe ram.

The use of remote kill line on a 5M system received several conflicting comments. This minimum standard is retained as proposed, because it reflects an appropriate and necessary minimum standard.

Comments were received suggesting that the minimum standard in the draft requiring an inside BOP or float sub was not appropriate and did not represent a true minimum standard. The requirement has not been removed, because having an inside BOP or float sub on site that will fit the drill string is standard procedure and necessary to prevent blowouts. However, this standard has been amended to apply specifically to drill string connections in use rather than the entire string.

The minimum standards for 10M and 15M systems in section III.A.2.a.v. received general comments expressing satisfaction with all the specified standards as being appropriate and necessary given the high relative pressures under consideration. However, other useful comments were received as discussed below which addressed issues that warranted further consideration.

The minimum standard for a rotating head if conditions warrant as required in the draft Order was removed since it was not stated as a true minimum standard. The authorized officer at the time the APD is approved always has the discretionary authority to require additional equipment if conditions warrant.

Two comments addressed the minimum standard that requires "3 chokes, 1 being remotely controlled." This standard remains as stated in the draft Order since this requirement is well-accepted operating practice and represents an appropriate minimum standard.

The requirement for a wear ring received several comments. These ranged from the belief that a wear ring is appropriate for all pressure systems to the belief that a wear ring is inappropriate for any system. The minimum standard for a wear ring on 10M and 15M systems has been retained in the final rulemaking in realization that detecting significant wear particularly in these higher rated systems is directly related to responsible well control equipment requirements.

The minimum standard in paragraph III.A.2.a.vii. attracted 1 comment suggesting different wording to recognize the existence of alternative measures that would satisfy the intent of the standard. This minimum standard has been modified to accommodate this request.

The minimum standard in paragraph III.A.2.b.i. generated several comments, some of which suggested that the choke lines should be anchored. This requirement has been included in the final rulemaking. This minimum standard also received comment concerning the requirement that the lines be straight unless turns use tee blocks or are targeted with running tees. This part of the minimum standard was not further modified since it represents an appropriate minimum standard consistent with established operating practice. Operators are reminded that if an instance occurs whereby a legitimate exception to this practice is necessary a variance can be requested as explained elsewhere in this Order.

Several comments were received concerning paragraph III.A.2.b.ii., which relates to the choke manifold equipment configurations. This standard was modified for clarity to improve the original intended meaning. Several valves as shown on the drawing have been removed or their size reduced as suggested in comments since they did not serve an operational purpose and, therefore, were not true minimum standards. Another comment on the choke manifold system urged that wording should be incorporated to state that the system should be kept from freezing. Since the Order requires that all equipment shall be "operational", which includes keeping components from freezing or from being affected by any other factors that would render them non-operational, no greater specificity in this regard is necessary.

As requested in comments, the requirements of this subpart have been clarified by the addition of minimum standards III.A.2.b.iii. and III.A.2.b.iv. These paragraphs more clearly specify the intent of the Order relating to unrestricted flow for valve lines, and the design for pressure gauges.

The pressure accumulator system minimum standards for 3M systems in section III.A.2.c.ii. attracted several general and somewhat divergent comments. No consensus or necessity for modification was expressed, and the final rulemaking in this section remains unchanged.

The minimum standards for 5M accumulator systems in section III.A.2.c.iii. received several comments stating that, as worded, the standards were excessive. The compromise wording adopted attempts to address the concerns of the comments. However, the 50 percent safety factor for 3 ram systems is retained after a review of manufacturers' recommendations as well as industry recommended practices since 5M and higher pressure rated systems typically require more stored volume due to higher BOP stacks, more piping length, etc.

Paragraph III.A.2.f. was amended to reflect suggestions in several comments offering improved language to clarify the minimum standard for accumulator pump capacity in accordance with conventional use. Under the revised minimum standard, the accumulator system is to be isolated rather than removed from service for testing the pump. Furthermore, the pumps are required to be capable of obtaining a minimum of 200 psi pressure above the specified accumulator precharge pressure. This change reflects a recognition that the 1200 psi standard in the proposed Order unduly restricted use of lower pressure accumulator systems.

Paragraph III.A.2.g. has been modified to specify how the valve position is to be maintained, as requested in several comments.

Paragraph III.A.2.h. generated several comments requesting modified language. A statement has been added to clarify the intent that remote controls are not required for 2M systems. The requirement for remote controls for 3M systems remains in place. Again, operators are reminded that if a 2M system is adequate under the requirements of this Order, and the use of a 3M system is being used only because of its availability, this should be noted at the time of approval and the request for approval should reflect equipment specified to handle 2M pressure situations. Only the specifications necessary for 2M systems would be enforced.

The minimum standard for well control equipment testing, III.A.2.i.i., received a comment on acceptable test fluids. Clear water or an appropriate clear liquid for subfreezing temperatures with a viscosity similar to water is required by this final rulemaking. Use of a drilling fluid rather than a clear liquid could mask and/or seal small leaks and, therefore, such use is not considered an appropriate practice or minimum standard, and the rulemaking has been amended to specify liquid rather than fluid.

The next provision providing minimum standards and enforcement provisions for well control equipment testing, in section III.A.2.i.ii., received comments that expressed concern as to the period of time to maintain the pressure test. This minimum standard has been amended to effect a compromise between the draft Order and the varying comments received. The final rulemaking specifies that the test shall be maintained for "10 minutes or until the provisions of the test are met, whichever is greater" instead of the 15-minute test period specified in the draft Order. Utilization of a test plug is addressed in the final rulemaking along with accompanying provisions for its pressure testing.

The length of test specified in III.A.2.i.iii. was similarly modified to "10 minutes or until provisions of the test are met".

Language in III.A.2.i.iv.B. is amended to make it clear that the test is to be performed when any seal subject to test pressure is broken.

Minimum standard III.A.2.i.vii is amended to require that the annular preventer shall be functionally operated at least weekly in order to determine whether the equipment is in working order without subjecting it to well bore pressures. This requirement would not significantly damage or cause premature wear of the rubber element.

The minimum standard III.A.2.i.ix. was amended for clarity to include the words "pit level" in describing the blowout prevention equipment (BOPE) drill to be conducted as suggested in a comment. This clarification refers to an exercise to be performed by the rig crew in response to a simulation of a gain in the mud pit level that would indicate an entry of fluid in the well bore.

B. Casing and Cementing Requirements

Many comments were received concerning the provisions for casing and cementing. Although the philosophy of what constitutes good minimum standards varied somewhat throughout these comments, those comments that provided alternative language to accomplish the perceived intent of the drafted standards were especially useful. The efforts of those commentators are especially appreciated in resolving and arriving at the appropriate minimum standards herein incorporated.

Numerous changes in the introductory language that precedes the minimum standards have been made as the result of comments. The draft order inconsistently referred to fresh water zones and to usable water zones needing protection. References to fresh water zones have been replaced with the term "usable water zones" throughout this final rulemaking for consistency and for regulatory compliance since usable water zones, which include fresh water zones, are also required to be protected.

Comments also suggested alternatives to the term "leasable mineral deposits." This term has been replaced as suggested by the term "valuable deposit of minerals" and is redefined as indicated in the definitions.

The criterion for casing setting depth has been revised. The draft criterion attracted more comments than any other single item in the proposed rulemaking. This requirement as it appears in the final rulemaking is consistent with accepted standard field operating practice and establishes the standard for design assuming normal drilling operations and conditions. In this context, the casing would not have to be designed to anticipate a completely unloaded situation down-hole.

The minimum design factors for tension, collapse, and burst have been removed in this final rulemaking, because of the great variations in calculation methods within industry among companies and from region to region. However, the operator will be required to submit the design factors that were utilized in his design for all exploratory wells and/or other wells as specified by the authorized officer.

The casing design factors for formation pressure gradients and fracture gradients attracted several comments. However, since both items occur with a statement "lacking better data", there was a consensus that these criteria are appropriate.

The minimum clearance provision for a hole/casing annulus received considerable comment. The necessity for an acceptable clearance was widely recognized, yet concern was expressed because of drill bit and casing size availability considerations. Several comments included excellent data on commonly accepted hole/casing annulus clearances that are in part derived from drill bit and casing size availability. The most common example cited was the use of 7 inch casing in an 8 1/2 inch hole. This calculates to a 0.422 inch clearance on all sides, which, according to both the comments and further research within BLM, is the "smallest" prudent clearance necessary to provide adequate isolation. Therefore, the final rulemaking establishes 0.422 inch clearance on all sides as the minimum design criterion, replacing 0.500 inch. Some comments strongly suggested that as much as 1 inch on all sides may be necessary, but the final rulemaking establishes a practicable minimum standard. It is recognized that there could be exceptions in unique circumstances when the operator or the authorized officer may wish to vary this requirement. These rare exceptions can be dealt with by requesting or requiring a variance as explained elsewhere in this Order. It should be realized that, as with any minimum standard or requirement, the authorized officer may require an increased clearance depending on field conditions. For example, depending on circumstances, the authorized representative may require additional clearance for surface casing strings.

The "waiting on cement" time requirement drew several comments that differed widely as to the suggested appropriate times. This requirement has been amended to indicate that the time must be adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out. This change was at the suggestion of comments received and represents the generally accepted field operating practice.

The minimum standard for casing in item III.B.1.a. has been amended as suggested in comments to improve clarity and provide for consistency with similar regulatory standards. The standard is strengthened by requiring testing and by requiring reconditioned casing to meet or exceed API standards for new casing.

The minimum standard for liners in paragraph III.B.1.b. attracted comments suggesting the overlap should be as much as 300 feet or as little as 50 feet. Maintaining the minimum standard at 100 feet of overlap was deemed the most appropriate to combine most beneficially safety and economy. Operators are free to exceed this minimum standard.

An additional comment on this section suggested language making it clear when a pressure test for liners should be performed, and setting the standards for such a test. This suggestion has been adopted in the final rulemaking.

At the request of comments, minimum standard III.B.1.e. has been amended to specify that the required report is to be made before running the next string of casing or before requesting plugging orders, whichever occurs first.

The minimum standard in paragraph III.B.1.f. received comments both on the standard for placement of centralizers and on the standard for determining the corrective action. These comments have been adopted. The standards have been amended to improve the likelihood of there being an adequate cement bond.

Minimum standard III.B.1.g. for use of top and bottom plugs was amended to improve clarity and to set forth acceptable alternatives for isolating the cement from contamination.

Minimum standard III.B.1.h. on pressure testing casing strings has been rephrased as suggested by comments in order to clarify the intent as well as the technical reasoning. As published in the proposed rulemaking, the standard for pressure testing—1 psi per foot of casing length—was an error, and the final Order returns to the standard that has been employed historically.

One comment was received suggesting alternative wording to make minimum standard III.B.1.i. on testing the pressure integrity of each casing shoe more flexible to meet varying pressure situations at different depths and in different formations. Recognizing that the well may not require a 5M system until it reaches greater depth, the suggested wording has been adopted. The final Order relaxes the requirement for portions of wells—generally the upper portions—that may not require a 5M system.

C. Mud Program Requirements

One comment was received asking that the term "mudding up" be defined. The final rulemaking includes a definition of this term.

In response to comments, the last sentence of the requirement statement for this section was modified by replacing "and" with "or" in recognition that being relatively near a premix bulk mud supply is a sufficient and acceptable alternative to maintaining sufficient quantities of mud materials on site.

For clarity and at the suggestion of a comment, the word "equipment" has been added to the term "visual mud-monitoring" in minimum standard III.C.2.

Minimum standard III.C.3. of the mud program requirements has been modified as suggested by several comments to require having mud monitoring equipment in place on all systems only when abnormal pressures are anticipated by the operator. A definition of "abnormal pressure" has been added in the definitions section to clarify when the operator is required to have monitoring equipment in place. In exploration areas, applications for permit to drill (APD) will be approved only if they call for monitoring equipment to be in place, because in such situations there can be little or no basis for anticipating normal pressures.

A change in the proposed Order at paragraph III.C.4. on testing for viscosity, density, and gel strength was made in response to comments stating that the Order should specify when it is necessary to begin requiring mud tests. This has been done in the final rulemaking by specifying that after mudding up, the tests should occur every 24 hours.

Several comments were received objecting to the minimum standard III.C.5. on the use of trip tanks. The requirement only applies to 10M, 15M, and upgraded 5M systems. Systems in such high pressure situations are unique by their nature and require special equipment to aid in the detection of kicks. This standard therefore remains unchanged, except that the authorized officer is given discretion, for 5M systems, to require a trip tank if conditions warrant.

Minimum standard III.C.6. on gas detection equipment has been completely rewritten, at the suggestion of one comment, to add a provision for monitoring other hydrocarbon gases, such as methane, as well as hydrogen sulfide. An editorial change was also made to correct the H_2S concentration listed from 100 ppm to 20 ppm.

The language of standard III.C.7. on flare systems has been changed to improve clarity by specifying that flare lines shall be positioned in the prevailing downwind direction from the gas source. In addition, the flare line discharge distance has been changed from 150 feet to 100 feet for consistency with proposed Order 6, which is in preparation, and with standards set by the Occupational Safety and Health Administration.

Standard III.C.8. has been amended to require the installation of a mud-gas separator (gasbuster) as specified at least 500 feet above the anticipated hydrocarbon zone instead of 1,000 feet as stated in the proposed rulemaking, and only for systems of 10M or greater, or those where abnormal pressures are anticipated even if the system is not 10M, rather than for all 5M or greater systems as provided in the proposed rulemaking. Several comments requested this change, which will also be consistent with the proposed Order 6 on H_2S Operations. This approach is more reasonable and flexible. The standard applies only in those discrete areas where separators are most likely to be needed. Additionally, the violation in the final rulemaking is classified as "minor" in recognition that the correction could readily be made before encountering the anticipated hydrocarbon zone.

D. Drill Stem Testing Requirements

A number of comments addressed the proposed prohibition of initiating drill stem testing (DST) outside of daylight hours. This provision has been modified to allow the authorized officer a degree of flexibility in approving DST in recognition that in the northern latitudes and during the winter months, initiation of a DST in daylight may not be practicable. Special safety requirements may be imposed by the authorized officer in those instances. Also, closed chamber DST may be accomplished day or night and provision for this has been added as suggested in comments and to clarify the original intention of the draft.

Standards III.D.1. and D.2. were editorially amended for clarity as suggested in comments.

Standard III.D.3. on the location of combustion engines has been amended to make it consistent with the OSHA requirement that they be located no closer than 100 feet from the well bore, unless equipped with arresters and/or water cooled exhaust manifolds.

E. Special Drilling Operations

Numerous comments were received concerning this section. Many of these addressed the minimum distances specified. In response to these comments, all distances have been standardized and reduced to 100 feet. For example, the length of the blooie line, required to be 150 feet from the well bore in the proposed rulemaking, is now 100 feet. In all cases, the distances specified in this final rulemaking pertaining to Special Drilling Operations are consistent with similar requirements of OSHA.

Another comment suggested modifying the minimum standard concerning the straight run on the blooie line. This has been modified by the addition of the words "unless otherwise approved" because there may be instances where a straight run may not be feasible.

One comment suggested removal of the minimum standard requiring deduster equipment during air/gas drilling. This comment was not adopted due to the potentially serious environmental consequences. If an operator has a special situation and can justify not using deduster equipment, he can request a variance of the authorized representative as detailed elsewhere in this Order.

As suggested in a comment, the minimum standard for containment of cuttings and the circulating medium has been amended to specify the required mode of containment.

Several comments dealt with the draft minimum standard requiring an automatic igniter and a continuous pilot light on the blooie line. This standard has been modified to provide that either of these methods is acceptable rather than both being required. Under certain circumstances the authorized officer may require both in approving a particular APD if redundancy is desirable; however, it is not necessary to require both as a minimum standard.

At the suggestion of several comments, the minimum standard concerning mud mixing equipment, mixing water, etc., was rewording for clarity.

F. Surface Use

Comments from within government and from industry were received concerning the minimum standards portion of the Surface Use Requirements. These comments did not particularly object to the stated minimum standard in the draft, but argued that this Order is not the appropriate place to outline specific surface standards. Several comments suggested that a revision of Onshore Order No. 1 would be more appropriate. BLM has scheduled such a revision to Onshore Order No. 1. In addition, under the Federal Onshore Oil and Gas Leasing Reform Act of 1937, management of surface use on National Forest lands is required to be coordinated with the Forest Service. In response to the comments, the minimum standards portion of the Surface Use Requirements has been modified in this final rulemaking to contain a general standard to comply with the approved APD rather than specific standards.

G. Drilling Abandonment Requirements

Comments received on the drilling abandonment section of this Order are discussed below as they address specific provisions.

Two comments suggested amendment of the provision on types of mineral deposits requiring protection. The term "prospectively valuable deposit of minerals" has been added in the introductory paragraph of this section and to the definitions section of the Order to clarify an unnecessarily vague reference to "other minerals".

Another comment requested that the deadline for following up in writing an oral request for abandonment be increased from 5 business days to 10. This comment has not been adopted because an operator can ask for an extension if additional time is needed.

The minimum standard in paragraph III.G.1.i.a. on migrating fluids was modified as suggested in comments to make it clear that gases as well as liquids are considered fluids with a potential to migrate, and that formations containing them shall be cemented across in the prescribed manner. Another comment on this section wanted the term "fluid" to be defined as fresh water or hydrocarbon. This suggestion was rejected as being too restrictive. For example, salt water or nitrogen gas zones require cementing across so that contamination of other zones by migration does not occur.

The requirement in the draft Onshore Order specifying protection of lost circulation zones during plugging has been removed at the suggestion of comments. However, as stated elsewhere in the Drilling Abandonment Requirements, the hole must be in a static condition at the time any plugs are placed, or the placement of additional plugs and/or cement may be required. Therefore, to assure a static well bore condition, lost circulation zones must be stabilized or isolated in some manner before further plugging can occur higher up in the hole.

The minimum standard in paragraph III.G.1.i.b. was modified as explained earlier in this section to clarify the types of minerals needing protection.

The minimum standard in paragraph III.G.1.ii. attracted comments questioning the reasoning behind the requirement of an additional 10 percent of slurry for each 1,000 feet of depth. This factor is included to compensate for mud contamination (and not as a washout factor as supposed in some comments) in pumping the plug to the required depth. For a 100 foot plug located at 10,000 feet, this would amount to an additional 100 feet of cement column. Similar comments were received concerning this requirement as it applies to cased holes. Since the logic for requiring this additional slurry is the same, those comments are not addressed further in this section.

The minimum standard in paragraph III.G.1.iv. was modified as suggested by comments to make it clear that it pertains to thick sections of a single formation. Another comment on this section preferred that extremely thick sections be defined as being 400 feet in thickness. This suggestion was not adopted because there are too many variables to select a particular number as "extremely thick". The authorized officer and the operator requesting plugging instructions need flexibility in determining whether a portion of a formation is extremely thick.

The minimum standard in paragraph III.G.1.v. on plugging open holes was modified in this final rulemaking as suggested by a comment to recognize that plugs shall be placed across in-gauge sections of the hole every 3,000 feet, unless otherwise approved by the authorized officer. This change will enable the authorized officer the flexibility to modify this requirement on a case-by-case basis.

Two comments addressed the minimum standard in paragraph III.G.2.iii., the amount of cement needed to cap a bridge plug when a bailer is used. The comments suggested 20 feet instead of the proposed 35 feet. The comments were rejected because a lesser amount is not considered adequate. This recognizes a policy based on Bureau of Land Management experience, requiring 35 feet, that has been in place for many years. The requirement of 35 feet is already less than the 50 feet of plug required to cap the bridge plug when not using a bailer.

Paragraph III.G.5. was amended because of a typographical error to require that at least the top 50 feet (instead of 100 feet) of the annulus shall be plugged.

The section on isolating medium, paragraph III.G.6. in this final rulemaking, was modified to clarify the types of minerals requiring protection as explained above. Another comment on this section suggested deleting the 15,000 pound maximum tagging weight provision. This comment was adopted because setting a maximum weight to be used to tag a plug is unnecessary.

The minimum standard in paragraph III.G.8. of this final rulemaking has been modified from the draft as suggested by a comment to clarify the cement plug requirement at the surface. This standard now states that the top 50 feet of the hole shall be plugged and removes the reference restricting this plug to the smallest casing extending to the surface. All annuluses within 50 feet of the surface are to be plugged off. Another comment on this provision suggested 100 feet of plug rather than 50 feet. This comment was not adopted because 50 feet is adequate if propoerly placed.

Paragraph III.G.10. concerning the surface cap was modified as suggested by comments to improve the clarity and sequence. Another comment on this minimum standard questioned the purpose of the weep hole. This term is defined and explained in the definitions section.

Discussion of IV Variances From Minimum Standard

The only comments on this section requested the addition of provision for oral variances during emergency situations. The final rulemaking adopts this suggestion, although such requests by the operator are required to be followed up by a written request as specified in the new wording. This change was incorporated in recognition that an emergency or other event that could not have been reasonably foreseen may occur during drilling operations.

Discussion of Attachments

Several comments were received concerning the choke manifold equipment configurations. A statement has been added to each of the pressure systems diagrams in response to the comments to indicate that the configuration of the equipment may vary. This was the original intent and the addition of the statement improves clarity.

Another comment requested that one of the two valves on the bleed line to the pit be removed from the requirement for equipment for pressure ratings of 3M and above. This comment was adopted for 3M systems, but was rejected for higher rated systems due to the higher pressures involved.

The principal authors of this proposed rulemaking are Howard Lemm of the Utah State Office, Carl Budd of the Rock Springs District Office, Hal Stoops of the Bakersfield District Office, and Bob Kent of the Washington Office, assisted by the staff of the Division of Legislation and Regulatory Management, Bureau of Land Management.

It is hereby designated that this proposed rulemaking does not constitute a major Federal action significantly affecting the quality of the human environment, and that no detailed statement pursuant to section 102(2)(C) of the National Environmental Policy Act of 1969 (42 U.S.C. 4332(2)(C)) is required.

The Department of the Interior has determined that this document is not a major rule under Executive Order 12291 and will not have a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 et seq.).

The information collection requirements contained in 43 CFR Part 3160 have been approved by the Office of Management and Budget under 44 U.S.C. 3501 *et seq.* and assigned clearance numbers 1004–0134 and 1004–0136.

List of Subjects in 43 CFR Part 3160

Government contracts, Mineral royalties, Oil and gas exploration, Oil and gas production, Public lands—mineral resources, Indian lands—mineral resources, Reporting and recordkeeping requirements.

Under the authorities cited below, Part 3160, Group 3100, Subchapter C, Chapter II of Title 43 of the Code of Federal Regulations is amended as set forth below.

October 11, 1988.

J. Steven Griles,

Assistant Secretary of the Interior.

PART 3160—[AMENDED]

1. The authority citation for Part 3160 continues to read:

Authority: The Mineral Leasing Act of 1920, as amended and supplemented (30 U.S.C. 183 et seq.), the Mineral Leasing Act for Acquired Lands of 1947, as amended (30 U.S.C. 351–359), the Act of May 21, 1930 (30 U.S.C. 301–306), the Act of March 3, 1909, as amended (25 U.S.C. 396), the Act of May 11, 1938, as amended (25 U.S.C. 396a–396q), the Act of Feburary 28, 1891, as amended (25 U.S.C. 397), the Act of May 29, 1924 (25 U.S.C. 398), the Act of March 3, 1927 (25 U.S.C. 398a–398e), the Act of June 30, 1919, as amended (25 U.S.C. 399), R.S. 441 (43 U.S.C. 1457), See also Attorney General's Opinion of April 2, 1941 (40 Op. Atty., Gen. 41), the Federal Property and Administrative Services Act of 1949, as amended (40 U.S.C. 471 et seq.), the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 et seq.), the Act of December 12, 1980 (42 U.S.C. 6508), the Combined Hydrocarbon Leasing Act of 1981 (Pub. L. 97–78), the Federal Oil and Gas Royalty Management Act of 1982 (30 U.S.C. 1701 et seq.) and the Indian Mineral Development Act of 1982 (25 U.S.C. 2102 et seq.).

2. Section 3164.1(b) is amended by adding the following entry to the table which is part of § 3164.1(b):

§ 3164.1 Onshore oil and gas orders.

* * * * *

(b) * * *

Order No.	Subject	Effective date	Federal Register reference	Supersedes
1	Approval of operations	November 12, 1983	48 FR 48916 and 48 FR 56226	NTL-6
2	Drilling operations			None

Note.—Numbers will be assigned by the Washington Office, Bureau of Land Management, to additional Orders as they are prepared for publication and added to this table.

Note.—This appendix is published for information only and will not appear in the Code of Federal Regulations.

Appendix—Text of Oil and Gas Order No. 2.

Onshore Oil and Gas Order No. 2

Drilling Operations on Federal and Indian Oil and Gas Leases

I. Introduction.
  A. Authority.
  B. Purpose.
  C. Scope.
  D. General.
II. Definitions.
III. Requirements.
  A. Well Control Requirements.
  B. Casing and Cementing Requirements.
  C. Mud Program Requirements.
  D. Drill Stem Testing Requirements.
  E. Special Drilling Operations.
  F. Surface Use.
  G. Drilling Abandonment.
IV. Variances from Minimum Standards.
Attachments.
I. Diagrams of Choke Manifold Requirements.
II. Sections from 43 CFR Subparts 3163 and 3165.

Onshore Oil and Gas Order No. 2

Drilling Operations on Federal and Indian Oil and Gas Leases

I. Introduction

A. Authority

This order is established pursuant to the authority granted to the Secretary of the Interior pursuant to various Federal and Indian mineral leasing statutes and the Federal Oil and Gas Royalty Management Act of 1982. This authority has been delegated to the Bureau of Land Management and is implemented by the onshore oil and gas operating regulations contained in 43 CFR Part 3160. Section 3164.1 thereof specifically authorizes the Director, Bureau of Land Management, to issue Onshore Oil and Gas Orders when necessary to implement and supplement the operating regulations and provides that all such Orders shall be binding on the lessees and operators of Federal and restricted Indian (except Osage tribe) oil and gas leases that have been, or may hereafter be, issued.

Specific authority for the provisions contained in this Order is found at: § 3162.3–1 *Drilling Applications and Plans;* § 3162.3–4 *Well Abandonment;* § 3162.4–1 *Well Records and Reports;* § 3162.4–3 *Samples, Tests, and Surveys;* § 3162.5–1 *Environmental Obligations;* § 3162.5–2 *Control of Wells;* § 3162.5–2(a) *Drilling Wells;* § 3162.5–3 *Safety Precautions;* and Subpart 3163 Noncompliance and Assessment.

B. Purpose

This onshore Order details the Bureau's uniform national standards for the minimum levels of performance expected from lessees and operators when conducting drilling operations on Federal and Indian lands (except Osage Tribe) and for abandonment immediately following drilling. The purpose also is to identify the enforcement actions that will result when violations of the minimum standards are found, and when those violations are not abated in a timely manner.

C. Scope

This Order is applicable to all onshore Federal and Indian (except Osage Tribe) oil and gas leases.

D. General

1. If an operator chooses to use higher rated equipment than that authorized in the Application for Permit to Drill (APD), testing procedures shall apply to the approved working pressures, not the upgraded higher working pressures.

2. Some situations may exist either on a well-by-well or field-wide basis whereby it is commonly accepted practice to vary a particular minimum standard(s) established in this Order. This situation may be resolved by requesting a variance (See section IV of this Order), by the inclusion of a stipulation to the APD, or by the issuance of a Notice to Lessees and Operators (NTL) by the appropriate BLM office.

3. When a violation is discovered, and if it does not cause or threaten immediate substantial and adverse impact on public health and safety, the environment, production accountability or royalty income, it will be classified as minor. The violation may be reissued as a major violation if not corrected during the abatement period and continued drilling has changed the adverse impact of the violation so that it meets the specific definition of a major violation.

4. This Onshore Order is not intended to circumvent the reporting requirements or compliance aspects that may be stated elsewhere in Existing NTL's, Onshore Orders, etc. A lessee's compliance with the requirements of the regulations in this Part shall not relieve the lessee of the obligation to comply with other applicable laws and regulations in accordance with 43 CFR 3162.5–1(c). Lessee's should give special attention to the automatic assessment provisions in 43 CFR 3163.1(b).

5. This Order is based upon the assumption that operations have been approved in accordance with 43 CFR Part 3160 and Onshore Oil and Gas Order No. 1. Failure to obtain approval prior to commencement of drilling or related operations shall subject the operator to immediate assessment under 43 CFR 3163.1(b)(2).

II. Definitions.

A. Abnormal Pressure Zone means a zone that has either pressure above or below the normal gradient for an area and/or depth.

B. Bleed Line means the vent line that bypasses the chokes in the choke manifold system; also referred to as Panic Line.

C. Blooie Line means a discharge line used in conjunction with a rotating head.

D. Drilling Spool means a connection component with both ends either flanged or hubbed, with an internal diameter at least equal to the bore of the casing, and with smaller side outlets for connecting auxiliary lines.

E. Exploratory Well means any well drilled beyond the known producing limits of a pool.

F. Fill-up Line means the line used to fill the hole when the drill pipe is being removed from the well. It is usually connected to a 2-inch collar that is welded into a drilling nipple.

G. Flare Line means a line used to carry gas away from the rig to be burned at a safer location. The gas comes from the degasser, gas buster, separator, or when drill stem testing, directly from the drill pipe.

H. Functionally Operated means activating equipment without subjecting it to well-bore pressure.

I. Isolating means using cement to protect, separate, or segregate usable water and mineral resources.

J. Lease means any contract, profit-share agreement, joint venture, or other agreement issued or approved by the United States under a mineral leasing law that authorizes exploration for, extraction of, or removal of oil or gas (See 43 CFR 3160.0–5).

K. Lessee means a person holding record title in a lease issued by the United States (See 43 CFR3160.0–5).

L. Make-up Water means water that is used in mixing slurry for cement jobs and plugging operations, and is compatible with the cement constituents being used.

M. Manual Locking Device means any manually activated device, such as hand wheels, etc., that is used for the purpose of locking the preventer in the closed position.

N. Mud for Plugging Purposes means a slurry of bentonite or similar flocculent/viscosifier, water, and additives needed to achieve the desired weight and consistency to stabilize the hole.

O. Mudding Up means adding materials and chemicals to water to control the viscosity, weight, and filtrate loss of the circulating system.

P. Operating Rights Owner (or Owner) means a person or entity holding operating rights in a lease issued by the United States. A lessee also may be an operating rights owner if the operating rights in a lease or portion thereof have not been severed from record title.

Q. Operational means capable of functioning as designed and installed without undue force or further modification.

R. Operator means any person or entity, including but not limited to the lessee or operating rights owner, who has stated in writing to the authorized officer his/her responsibility for the operations conducted in the leased lands or a portion thereof.

S. Precharge Pressure means the nitrogen pressure remaining in the accumulator after all the hydraulic fluid has been expelled from beneath the movable barrier.

T. Prompt Correction means immediate correction of violations, with drilling suspended if required in the discretion of the authorized officer.

U. Prospectively Valuable Deposit of Minerals means any deposit of minerals that the authorized officer determines to have characteristics of quantity and quality that warrant its protection.

V. Tagging the Plug means running in the hole with a string of tubing or drill pipe ~~and placing the weight of that string~~ on the plug. Other methods of tagging the plug may be approved by the authorized officer.

W. Targeted Tee or Turn means a fitting used in pressure piping in which a bull plug or blind flange of the same pressure rating as the rest of the approved system is installed at the end of a tee or cross, opposite the fluid entry arm, to change the direction of flow and to reduce erosion.

X. 2M, 3M, 5M, 10M, and 15M mean the pressure ratings used for equipment with a working pressure rating of the equivalent thousand pounds per square inch (psi) (2M=2,000 psi, 3M=3,000 psi, etc.).

Y. Usable Water means generally those waters containing up to 10,000 ppm of total dissolved solids.

Z. Weep Hole means a small hole that allows pressure to bleed off through the metal plate used in covering well bores after abandonment operations.

III. Requirements

A. Well Control Requirements

1. Blowout preventer (BOP) and related equipment (BOPE) shall be installed, used, maintained, and tested in a manner necessary to assure well control and shall be in place and operational prior to drilling the surface casing shoe unless otherwise approved by the APD. Commencement of drilling without the approved BOPE installed, unless otherwise approved, shall subject

the operator to immediate assessment under 43 CFR 3163.1(b)(1). The BOP and related control equipment shall be suitable for operations in those areas which are subject to sub-freezing conditions. The BOPE shall be based on known or anticipated sub-surface pressures, geologic conditions, accepted engineering practice, and surface environment. Item number 7 of the 8 point plan in the APD specifically addresses expected pressures. The working pressure of all BOPE shall exceed the anticipated surface pressure to which it may be subjected, assuming a partially evacuated hole with a pressure gradient of 0.22 psi/ft.

2. The gravity of the violation for many of the well control minimum standards listed below are shown as minor. However, very short abatement periods in this Order are often specified in recognition that by continuing to drill, the violation which was originally determined to be of a minor nature may cause or threaten immediate, substantial and adverse impact on public health and safety, the environment, production accountability, or royalty income, which would require its reclassification as a major violation.

a. *Minimum standards and enforcement provisions for well control equipment.* i. A well control device shall be installed at the surface that is capable of complete closure of the well bore. This device shall be closed whenever the well is unattended.

Violation: Major.

Corrective Action: Install the equipment as specified.

Normal Abatement Period: Prompt correction required.

ii. 2M system:

—Annular preventer, double ram, or two rams with one being blind and one being a pipe ram *

—Kill line (2 inch minimum)

—1 kill line valve (2 inch minimum)

—1 choke line valve

—2 chokes (refer to diagram in Attachment 1)

—Upper kelly cock valve with handle available

—Safety valve and subs to fit all drill strings in use

—Pressure gauge on choke manifold

—2 inch minimum choke line

—Fill-up line above the uppermost preventer.

Violation: Minor (all items unless marked by asterisk).

Corrective Action: Install the equipment as specified.

Normal Abatement Period: 24 hours.

* Violation: Major.

Corrective Action: Install the equipment as specified.

Normal Abatement Period: Prompt correction required.

iii. 3M system:

—Annular preventers *

—Double ram with blind rams and pipe rams *

—Drilling spool, or blowout preventer with 2 side outlets (choke side shall be a 3-inch minimum diameter, kill side shall be at least 2-inch diameter) *

—Kill line (2 inch minimum)

—A minimum of 2 choke line valves (3 inch minimum) *

—3 inch diameter choke line

—2 kill line valves, one of which shall be a check valve (2 inch minimum) *

—2 chokes (refer to diagram in Attachment 1)

—Pressure gauge on choke manifold

—Upper kelly cock valve with handle available

—Safety valve and subs to fit all drill string connections in use

—All BOPE connections subjected to well pressure shall be flanged, welded, or clamped *

—Fill-up line above the uppermost preventer.

Violation: Minor (all items unless marked by asterisk).

Corrective Action: Install the equipment as specified.

Normal Abatement Period: 24 hours.

* Violation: Major.

Corrective Action: Install the equipment as specified.

Normal Abatement Period: Prompt correction required.

iv. 5M system:

—Annular preventer *

—Pipe ram, blind ram, and, if conditions warrant, as specified by the authorized officer, another pipe ram shall also be required *

—A second pipe ram preventer or variable bore pipe ram preventer shall be used with a tapered drill string

—Drilling spool, or blowout preventer with 2 side outlets (choke side shall be a 3-inch minimum diameter, kill side shall be at least 2-inch diameter) *

—3 inch diameter choke line

—2 choke line valves (3 inch minimum) *

—Kill line (2 inch minimum)

—2 chokes with 1 remotely controlled from rig floor (refer to diagram in Attachment 1)

—2 kill line valves and a check valve (2 inch minimum) *

—Upper kelly cock valve with hand available

—When the expected pressures approach working pressure of the system, 1 remote kill line tested to stack pressure (which shall run to the outer edge of the substructure and be unobstructed)

—Lower kelly cock valve with handle available

—Safety valve(s) and subs to fit all drill string connections in use

—Inside BOP or float sub available

—Pressure gauge on choke manifold

—All BOPE connections subjected to well pressure shall be flanged, welded, or clamped *

—Fill-up line above the uppermost preventer.

Violation: Minor (all items unless marked by asterisk).

Corrective Action: Install the equipment as specified.

Normal Abatement Period: 24 hours.

* Violation: Major.

Corrective Action: Install the equipment as specified.

Normal Abatement Period: Prompt correction required.

v. 10M & 15M system:

—Annular preventer *

—2 pipe rams *

—Blind rams *

—Drilling spool, or blowout preventer with 2 side outlets (choke side shall be a 3-inch minimum diameter, kill side shall be at least 2-inch diameter) *

—3 inch choke line *

—2 kill line valves (2 inch minimum) and check valve *

—Remote kill line (2 inch minimum) shall run to the outer edge of the substructure and be unobstructed

—Manual and hydraulic choke line valves (3 inch minimum) *

—3 chokes, 1 being remotely controlled (refer to diagram in Attachment 1)

—Pressure gauge on choke manifold

—Upper kelly cock valve with handle available

—Lower kelly cock valve with handle available

—Safety valves and subs to fit all drill string connections in use

—Inside BOP or float sub available

—Wear ring in casing head

—All BOPE connections subjected to well pressure shall be flanged, welded, or clamped *

—Fill-up line installed above the uppermost preventer.

Violation: Minor (all items unless marked by asterisk).

Corrective Action: Install the equipment as specified.

Normal Abatement Period: 24 hours.

* Violation: Major.

Corrective Action: Install the equipment as specified.

Normal Abatement Period: Prompt correction required.

vi. If repair or replacement of the BOPE is required after testing, this work shall be performed prior to drilling out the casing shoe.

Violation: Major.

Corrective Action: Install the equipment as specified.

Normal Abatement Period: Prompt correction required.

vii. When the BOPE cannot function to secure the hole, the hole shall be secured using cement, retrievable packer or a bridge plug packer, bridge plug, or other acceptable approved method to assure safe well conditions.

Violation: Major.

Corrective Action: Install the equipment as specified.

Normal. Abatement Period: Prompt correction required.

b. *Minimum standards and enforcement provisions for choke manifold equipment.* i. All choke lines shall be straight lines unless turns use tee blocks or are targeted with running tees, and shall be anchored to prevent whip and reduce vibration.

Violation: Minor

Corrective Action: Install the equipment as specified.

Normal Abatement Period: 24 hours.

ii. Choke manifold equipment configuration shall be functionally equivalent to the appropriate example diagram shown in Attachment 1 of this Order.

Violation: Minor

Corrective Action: Install the equipment as specified.

Normal Abatement Period: Prompt correction required.

iii. All valves (except chokes) in the kill line, choke manifold, and choke line shall be a type that does not restrict the flow (full opening) and that allows a straight through flow (same enforcement as item ii).

iv. Pressure gauges in the well control system shall be a type designed for drilling fluid service (same enforcement as above).

c. *Minimum standards and enforcement provisions for pressure accumulator system.* i. 2M system—accumulator shall have sufficient capacity to close all BOP's and retain 200 psi above precharge. Nitrogen bottles that meet manufacturer's specifications may be used as the backup to the required independent power source.

Violation: Minor

Corrective Action: Install the equipment as specified.

Normal Abatement Period: 24 hours.

ii. 3M system—accumulator shall have sufficient capacity to open the hydraulically-controlled choke line valve (if so equipped), close all rams plus the annual preventer, and retain a minimum of 200 psi above precharge on the closing manifold without the use of the closing unit pumps. This is a minimum requirement. The fluid reservoir capacity shall be double the accumulator capacity and fluid level maintained at manufacturer's recommendations. The 3M system shall have 2 independent power sources to close the preventers. Nitrogen bottles (3 minimum) may be 1 of the independent power sources and, if so, shall maintain a charge equal to the manufacturer's specifications.

Violation: Minor.

Corrective Action: install the equipment as specified.

Normal Abatement Period: 24 hours.

iii. 5M and higher system—accumulator shall have sufficient capacity to open the hydraulically-controlled gate valve (if so equipped) and close all rams plus the annular preventer (for 3 ram systems add a 50 percent safety factor to compensate for any fluid loss in the control system or preventers) and retain a minimum pressure of 200 psi above precharge on the closing manifold without use of the closing unit pumps. The reservoir capacity shall be double the accumulator capacity, and the fluid level shall be maintained at manufacturer's recommendations. Two independent sources of power shall be available for powering the closing unit pumps. Sufficient nitrogen bottles are suitable as a backup power source only, and shall be recharged when the pressure falls below manufacturer's specifications.

Violation: Minor.

Corrective Action: Install the equipment as specified.

Normal Abatement Period: 24 hours.

d. *Minimum standards and enforcement provisions for accumulator precharge pressure test.* This test shall be conducted prior to connecting the closing unit to the BOP stack and at least once every 6 months. The accumulator pressure shall be corrected if the measured precharge pressure is found to be above or below the maximum or minimum limit specified below (only nitrogen gas may be used to precharge):

Accumulator working pressure rating	Minimum acceptable operating pressure	Desired precharge pressure	Maximum acceptable precharge pressure	Minimum acceptable precharge pressure
1,500 psi	1,500 psi	750 psi	800 psi	700 psi
2,000 psi	2,000 psi	1,000 psi	1,100 psi	900 psi
3,000 psi	3,000 psi	1,000 psi	1,100 psi	900 psi

Violation: Minor.

Corrective Action: Perform test.

Normal Abatement Period: 24 hours.

e. *Minimum standards and enforcement provisions for power availability.* Power for the closing unit pumps shall be available to the unit at all times so that the pumps shall automatically start when the closing unit manifold pressure has decreased to a pre-set level.

Violation: Major.

Corrective Action: Install the equipment as specified.

Normal Abatement Period: Prompt correction required.

f. *Minimum standards and enforcement provisions for accumulator pump capacity.* Each BOP closing unit shall be equipped with sufficient number and sizes of pumps so that, with the accumulator system isolated from service, the pumps shall be capable of opening the hydraulically-operated gate valve (if so equipped), plus closing the annular preventer on the smallest size drill pipe to be used within 2 minutes, and obtain a minimum of 200 psi above specified accumulator precharge pressure.

Violation: Minor.

Corrective Action: Install the equipment as specified.

Normal Abatement Period: 24 hours.

g. *Minimum standards and enforcement provisions for locking devices.* A manual locking device (i.e., hand wheels) or automatic locking devices shall be installed on all systems of 2M or greater. A valve shall be installed in the closing line as close as possible to the annular preventer to act as a locking device. This valve shall be maintained in the open position and shall be closed only when the power source for the accumulator system is inoperative.

Violation: Minor.

Corrective Action: Install the equipment as specified.

Normal Abatement Period: 24 hours.

h. *Minimum standards and enforcement provisions for remote* *controls.* Remote controls shall be readily accessible to the driller. Remote controls for all 3M or greater systems shall be capable of closing all preventers. Remote controls for 5M or greater systems shall be capable of both opening and closing all preventers. Master controls shall be at the accumulator and shall be capable of opening and closing all preventers and the choke line valve (if so equipped). No remote control for a 2M system is required.

Violation: Minor.

Corrective Action: Install the equipment as specified.

Normal Abatement Period: 24 hours.

i. *Minimum standards and enforcement provisions for well control equipment testing.* i. Perform all tests described below using clear water or an appropriate clear liquid for subfreezing temperatures with a viscosity similar to water.

ii. Ram type preventers and associated equipment shall be tested to approved (see item I.D.1. of this order) stack working pressure if isolated by test plug or to 70 percent of internal yield pressure of casing if BOP stack is not isolated from casing. Pressure shall be maintained for at least 10 minutes or until requirements of test are met, whichever is longer. If a test plug is utilized, no bleed-off of pressure is acceptable. For a test not utilizing a test plug, if a decline in pressure of more than 10 percent in 30 minutes occurs, the test shall be considered to have failed. Valve on casing head below test plug shall be open during test of BOP stack.

iii. Annular type preventers shall be tested to 50 percent of rated working pressure. Pressure shall be maintained at least 10 minutes or until provisions of test are met, whichever is longer.

iv. As a minimum, the above test shall be performed:

A. when initially installed;

B. whenever any seal subject to test pressure is broken;

C. following related repairs; and

D. at 30-day intervals.

v. Valves shall be tested from working pressure side during BOPE tests with all down stream valves open.

vi. When testing the kill line valve(s), the check valve shall be held open or the ball removed.

vii. Annular preventers shall be functionally operated at least weekly.

viii. Pipe and blind rams shall be activated each trip, however, this function need not be performed more than once a day.

xi. A BOPE pit level drill shall be conducted weekly for each drilling crew.

x. Pressure tests shall apply to all related well control equipment.

xi. All of the above described tests and/or drills shall be recorded in the drilling log.

Violation: Minor.

Corrective action: Perform the necessary test or provide documentation.

Normal Abatement Period: 24 hours or next trip, as most appropriate.

B Casing and Cementing Requirements

The proposed casing and cementing programs shall be conducted as approved to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. Any isolating medium other than cement shall receive approval prior to use. The casing setting depth shall be calculated to position the casing seat opposite a competent formation which will contain the maximum pressure to which it will be exposed during normal drilling operations. Determination of casing setting depth shall be based on all relevant factors, including: presence/absence of hydrocarbons; fracture gradients; usable water zones; formation pressures; lost circulation zones; other minerals; or other unusual characteristics. All indications of usable water shall be reported.

—Minimum design factors for tensions, collapse, and burst that are incorporated into the casing design by an operator/leasee shall be submitted to the authorized operator for his review and approval along with the APD for all exploratory wells or as otherwise specified by the authorized officer.

—Casing design shall assume formation pressure gradients of 0.44 to 0.50 psi per foot for exploratory wells (lacking better data).

—Casing design shall assume fracture gradients from 0.70 to 1.00 psi per foot for exploratory wells (lacking better data).

—Casing collars shall have a minimum clearance of 0.422 inches on all sides in the hole/casing annulus, with recognition that variances can be granted for justified exceptions.

—All waiting on cement times shall be adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

1. Minimum Standards and Enforcement Provisions for Casing and Cementing.

a. All casing, except the conductor casing, shall be new or reconditioned and tested used casing that meets or exceeds API standards for new casing.

Violation: Major

Corrective Action: Perform remedial action as specified by the authorized officer.

Normal Abatement Period: Prompt correction required.

b. For liners, a minimum of 100 feet of overlap between a string of casing and the next larger casing is required. The interval of overlap shall be sealed and tested. The liner shall be tested by a fluid entry or pressure test to determine whether a seal between the liner top and the next larger string has been achieved. The test pressure shall be the maximum anticipated pressure to which the seal will be exposed. No test shall be required for liners that do not incorporate or need a seal mechanism.

Violation: Minor.

Corrective Action: Perform remedial action as specified by the authorized officer.

Normal Abatement Period: Upon determination of corrective action.

c. The surface casing shall be cemented back to surface either during the primary cement job or by remedial cementing.

Violation: Major.

Corrective Action: Perform remedial cementing.

Normal Abatement Period: Prompt correction required.

d. All of the above described tests shall be recorded in the drilling log.

Violation: Minor.

Corrective Action: Perform the necessary test or provide documentation.

Normal Abatement Period: 24 hours.

e. All indications of usable water shall be reported to the authorized officer prior to running the next string of casing or before plugging orders are requested, whichever occurs first.

Violation: Major.

Corrective Action: Report information as required.

Normal Abatement Period: Prompt correction required.

f. Surface casing shall have centralizers on every fourth joint of casing starting with the shoe joint and up to the bottom of the cellar.

Violations: Major.

Corrective Action: Logging/testing may be required to determine the quality of the job. Recementing may then be specified.

Normal Abatement Period: Prompt correction upon determination of corrective action.

g. Top plugs shall be used to reduce contamination of cement by displacement fluid. A bottom plug or other acceptable technique, such as a suitable preflush fluid, inner string cement method, etc., shall be utilized to help isolate the cement from contamination by the mud fluid being displaced ahead of the cement slurry.

Violation: Major

Correction Action: Logging may be required to determine the quality of the cement job. Recementing or further recementing may then be specified.

Normal Abatement Period: Based upon determination of corrective action.

h. All casing strings below the conductor shall be pressure tested to 0.22 psi per foot of casing string length or 1500 psi, whichever is greater, but not to exceed 70 percent of the minimum internal yield. If pressure declines more than 10 percent in 30 minutes, corrective action shall be taken.

Violation: Minor.

Corrective Action: Perform the test and/or remedial action as specified by the authorized officer.

Normal Abatement Period: 24 hours.

i. On all exploratory wells, and on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

Violation: Minor.

Corrective Action: Perform the specified test.

Normal Abatement Period: 24 hours.

C. Mud Program Requirements

The characteristics, use, and testing of drilling mud and the implementation of related drilling procedures shall be designed to prevent the loss of well control. Sufficient quantities of mud materials shall be maintained or readily accessible for the purpose of assuring well control.

Minimum Standards and Enforcement Provisions for Mud Program and Equipment

1. Record slow pump speed on daily drilling report after mudding up.

Violation: Minor.

Corrective Action: Record required information.

Normal Abatement Period: 24 hours.

2. Visual mud monitoring equipment shall be in place to detect volume changes indicating loss or gain of circulating fluid volume.

Violation: Minor.

Corrective Action: Install necessary equipment.

Normal Abatement Period: 24 hours.

3. When abnormal pressures are anticipated. Electronic/mechanical mud monitoring equipment shall be required, which shall include as a minimum; pit volume totalizer (PVT); stroke counter; and flow sensor.

Violation: Minor.

Corrective Action: Install necessary instrumentation.

Normal Abatement Period: 24 hours.

4. A mud test shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.

Violation: Minor.

Corrective Action: Perform necessary tests.

Normal Abatement Period: 24 hours.

5. A trip tank shall be used on 10M and 15M systems and on upgraded 5M systems as determined by the authorized officer.

Violation: Minor.

Corrective Action: Install necessary equipment.

Normal Abatement Period: 24 hours.

6. a. Gas detecting equipment shall be installed in the mud return system for exploratory wells or wells where abnormal pressure is anticipated, and hydrocarbon gas shall be monitored for pore pressure changes.

b. Hydrogen sulfide safety and monitoring equipment shall be available and in use where atmospheric concentrations of hydrogen sulfide of 20 ppm or greater are anticipated.

Violation: Minor.

Corrective Action: Install necessary equipment.

Normal Abatement Period: 24 hours.

7. All flare systems shall be designed to gather and burn all gas. The flare line(s) discharge shall be located not less than 100 feet from the well head, having straight lines unless turns are targeted with running tees, and shall be positioned downwind of the prevailing wind direction and shall be anchored. The flare system shall have an effective method for ignition. Where noncombustible gas is likely or expected to be vented, the system shall be provided supplemental fuel for ignition and to maintain a continuous flare.

Violation: Major.

Corrective Action: Install equipment as specified.

Normal Abatement Period: 24 hours.

8. A mud-gas separator (gas buster) shall be installed and operable for all systems of 10M or greater and for any system where abnormal pressure is anticipated beginning at a point at least 500 feet above any anticipated hydrocarbon zone of interest.

Violation: Minor.

Corrective Action: Install required equipment.

Normal Abatement Period: Prompt correction required.

D. Drill Stem Testing Requirements

Initial opening of drill stem test tools shall be restricted to daylight hours unless specific approval to start during other hours is obtained from the authorized officer. However, DSTs may be allowed to continue at night if the test was initiated during daylight hours and the rate of flow is stabilized and if adequate lighting is available (i.e., lighting which is adequate for visibility and vapor-proof for safe operations). Packers can be released, but tripping shall not begin before daylight, unless prior approval is obtained from the authorized officer. Closed chamber DSTs may be accomplished day or night.

Minimum Standards for Drill Stem Testing

1. A DST that flows to the surface with evidence of hydrocarbons shall be either reversed out of the testing string under controlled surface conditions, or displaced into the formation prior to pulling the test tool. This would involve providing some means for reverse circulation.

Violation: Major.

Corrective Action: Contingent on circumstances and as specified by the authorized officer.

Normal Abatement Period: Prompt correction required.

2. Separation equipment required for the anticipated recovery shall be properly installed before a test starts.

Violation: Major.

Corrective Action: Install required equipment.

Normal Abatement Period: Prompt correction required.

3. All engines within 100 feet of the wellbore that are required to "run" during the test shall have spark arresters or water cooled exhausts.

Violation: Major.

Corrective Action: Install required equipment.

Normal Abatement Period: Prompt correction required.

E. Special Drilling Operations

1. In addition to the equipment already specified elsewhere in this onshore order, the following equipment shall be in place and operational during air/gas drilling:

—Properly lubricated and maintained rotating head *

—Spark arresters on engines or water cooled exhaust *

—Blooie line discharge 100 feet from well bore and securely anchored

—Straight run on blooie line unless otherwise approved

—Deduster equipment *

—All cuttings and circulating medium shall be directed into a reserve or blooie pit *

—Float valve above bit *

—Automatic igniter or continuous pilot light on the blooie line *

—Compressors located in the opposite direction from the blooie line a minimum of 100 feet from the well bore

—Mud circulating equipment, water, and mud materials (does not have to be premixed) sufficient to maintain the capacity of the hole and circulating tanks or pits

Violation: Minor (unless marked by an asterisk).

Corrective Action: Install the equipment as specified.

Normal Abatement Period: 24 hours.

* Violation: Major.

Corrective Action: Install the equipment as specified.

Normal Abatement Period: Prompt correction required.

2. Hydrogen sulphide operation is specifically addressed under Onshore Oil and Gas Order No. 6.

F. Surface Use

Onshore Oil and Gas Order No. 1 specifically addresses surface use. That Order provides for safe operations, adequate protection of surface resources and uses, and other environmental components. The operator/lessee is responsible for, and liable for, all building, construction, and operating activities and subcontracting activities conducted in association with the APD. Requirements and special stipulations for surface use are contained in or attached to the approved APD. Minimum Standards and Enforcement Provisions for Surface Use.

The requirements and stipulations of approval shall be strictly adhered to by the operator/lessee and any contractors.

Violation: If a violation is identified by the authorized officer he shall determine whether it is major or minor, considering the definitions in 43 CFR 3160.0–5, and shall specify the appropriate corrective action and abatement period.

G. Drilling Abandonment Requirements

The following standards apply to the abandonment of newly drilled dry or non-productive wells in accordance with 43 CFR 3162.3–4 and section V of Onshore Oil and Gas Order No. 1. Approval shall be obtained prior to the commencement of abandonment. All formations bearing usable-quality water, oil, gas, or geothermal resources, and/or a prospectively valuable deposit of minerals shall be protected. Approval may be given orally by the authorized officer before abandonment operations are initiated. This oral request and approval shall be followed by a written notice of intent to abandon filed not later than the fifth business day following oral approval. Failure to obtain approval prior to commencement of abandonment operations shall result in immediate assessment of under 43 CFR 3163.1(b)(3). The hole shall be in static condition at the time any plugs are placed (this does not pertain to plugging lost circulation zones). Within 30 days of completion of abandonment, a subsequent report of abandonment shall be filed. Plugging design for an abandonment hole shall include the following:

1. Open Hole.

i. A cement plug shall be placed to extend at least 50 feet below the bottom (except as limited by total depth (TD) or plugged back total depth (PBTD)), to 50 feet above the top of:

a. Any zone encountered during drilling which contains fluid or gas with a potential to migrate;

b. Any prospectively valuable deposit of minerals.

ii. All cement plugs, except the surface plug, shall have sufficient slurry volume to fill 100 feet of hole, plus an additional 10 percent of slurry for each 1,000 feet of depth.

iii. No plug, except the surface plug, shall be less than 25 sacks without receiving specific approval from the authorized officer.

iv. Extremely thick sections of a single formation may be secured by placing 100-foot plugs across the top and bottom of the formation, and in accordance with item ii hereof.

v. In the absence of productive zones or prospectively valuable deposits of minerals which otherwise require placement of cement plugs, long sections of open hole shall be plugged at least every 3,000 feet. Such plugs shall be placed across in-gauge sections of the hole, unless otherwise approved by the authorized officer.

2. Cased Hole. A cement plug shall be placed opposite all open perforations and extend to a minimum of 50 feet below (except as limited by TD or PBTD) to 50 feet above the perforated interval. All cement plugs, except the surface plug, shall have sufficient slurry volume to fill 100 feet of hole, plus an additional 10 percent of slurry for each 1,000 feet of depth. In lieu of the cement plug, a bridge plug is acceptable, provided:

i. The bridge plug is set within 50 feet to 100 feet above the open perforations;

ii. The perforations are isolated from any open hole below; and

iii. The bridge plug is capped with 50 feet of cement. If a bailer is used to cap this plug, 35 feet of cement shall be sufficient.

3. Casing Removed from Hole. If any casing is cut and recovered, a cement plug shall be placed to extend at least 50 feet above and below the stub. The exposed hole resulting from the casing removal shall be secured as required in items 1i and 1ii hereof.

4. An additional cement plug placed to extend a minimum of 50 feet above and below the shoe of the surface casing (or intermediate string, as appropriate).

5. Annular Space. No annular space that extends to the surface shall be left open to the drilled hole below. If this condition exists, a minimum of the top 50 feet of annulus shall be plugged with cement.

6. Isolating Medium. Any cement plug which is the only isolating medium for a fresh water interval or a zone containing a prospectively valuable deposit of minerals shall be tested by tagging with the drill string. Any plugs placed where the fluid level will not remain static also shall be tested by either tagging the plug with the working pipe string, or pressuring to a minimum pump (surface) pressure of 1,000 psi, with no more than a 10 percent drop during a 15-minute period (cased hole only). If the integrity of any other plug is questionable, or if the authorized officer has specific concerns for which he/she orders a plug to be tested, it shall be tested in the same manner.

7. Silica Sand or Silica Flour. Silica sand or silica flour shall be added to cement exposed to bottom hole static temperatures above 230 °F to prevent heat degradation of the cement.

8. Surface Plug. A cement plug of at least 50 feet shall be placed across all annuluses. The top of this plug shall be placed as near the eventual casing cut-off point as possible.

9. Mud. Each of the intervals between plugs shall be filled with mud of sufficient density to exert hydrostatic pressure exceeding the greatest formation pressure encountered while drilling such interval. In the absense of other information at the time plugging is approved, a minimum mud weight of 9 pounds per gallon shall be specified.

10. Surface Cap. All casing shall be cut-off at the base of the cellar or 3 feet below final restored ground level (whichever is deeper). The well bore shall then be covered with a metal plate at least ¼ inch thick and welded in place, or a 4-inch pipe, 10-feet in length, 4 feet above ground and embedded in cement as specified by the authorized officer. The well location and identity shall be permanently inscribed. A weep

hole shall be left if a metal plate is welded in place.

11. The cellar shall be filled with suitable material as specified by the authorized officer and the surface restored in accordance with the instructions of the authorized officer.

Minimum Standard

All plugging orders shall be strictly adhered to.

Violation: Major.

Corrective Action: Contingent upon circumstances.

Normal Abatement Period: Prompt correction required.

IV. Variances From Minimum Standard

An operator may request the authorized officer to approve a variance from any of the minimum standards prescribed in section III hereof. All such requests shall be submitted in writting to the appropriate authorized officer and provide information as to the circumstances which warrant approval of the variance(s) requested and the proposed alternative methods by which the related minimum standard(s) are to be satisfied. The authorized officer, after considering all relevant factors, if appropriate, may approve the requested variance(s) if it is determined that the proposed alternative(s) meet or exceed the objectives of the applicable minimum standard(s).

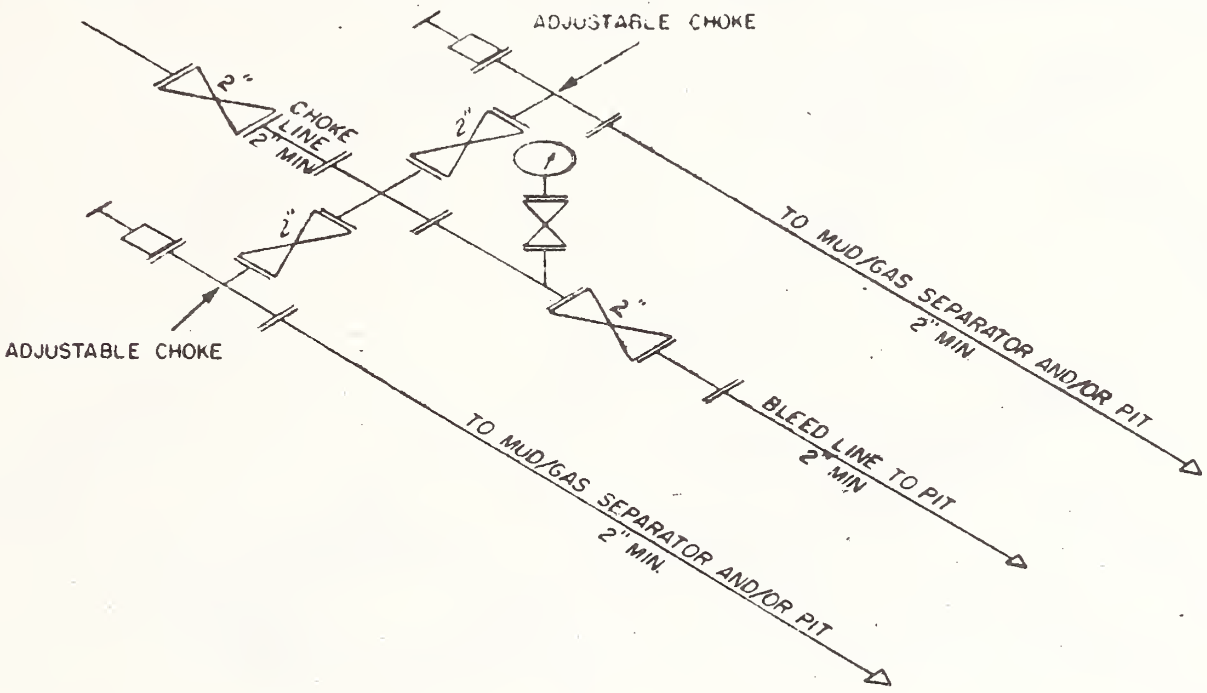
Emergency or other situations of an immediate nature that could not be reasonably foreseen at the time of APD approval may receive oral approval. However, such requests shall be followed up by a written notice filed not later than the fifth business day following oral approval.

ATTACHMENTS

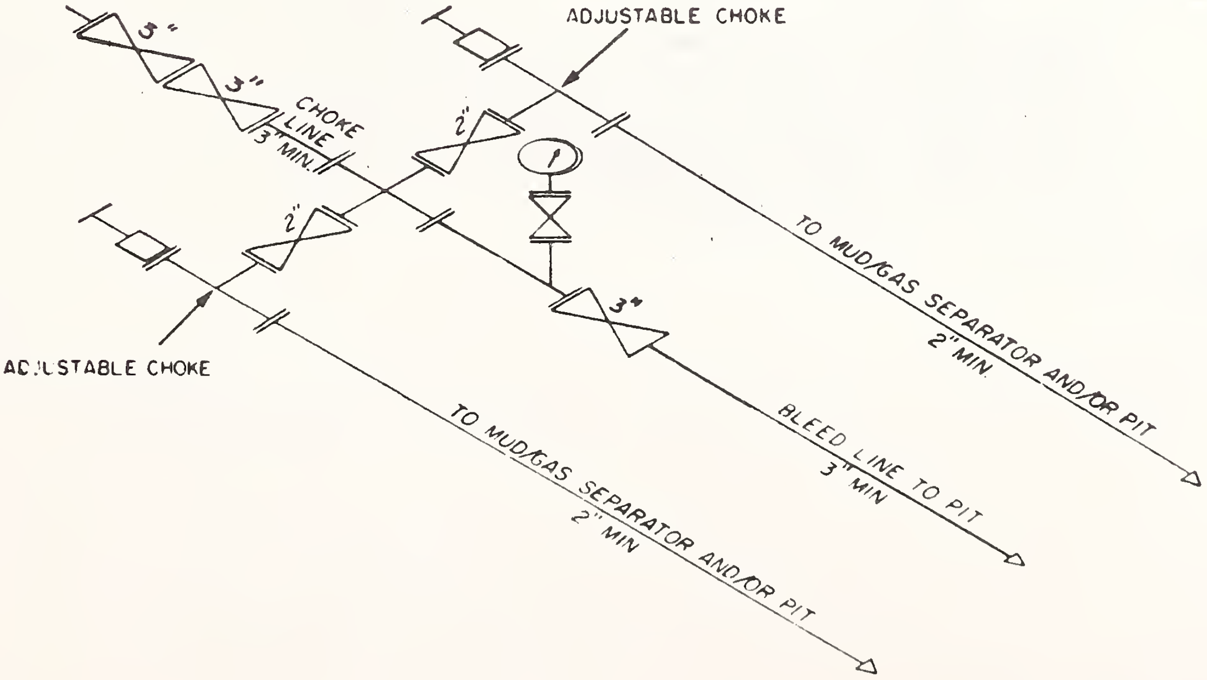
I. Diagrams of Choke Manifold Equipment

II. Sections From 43 CFR Subparts 3163 and 3165 (Not included With Federal Register Publication)

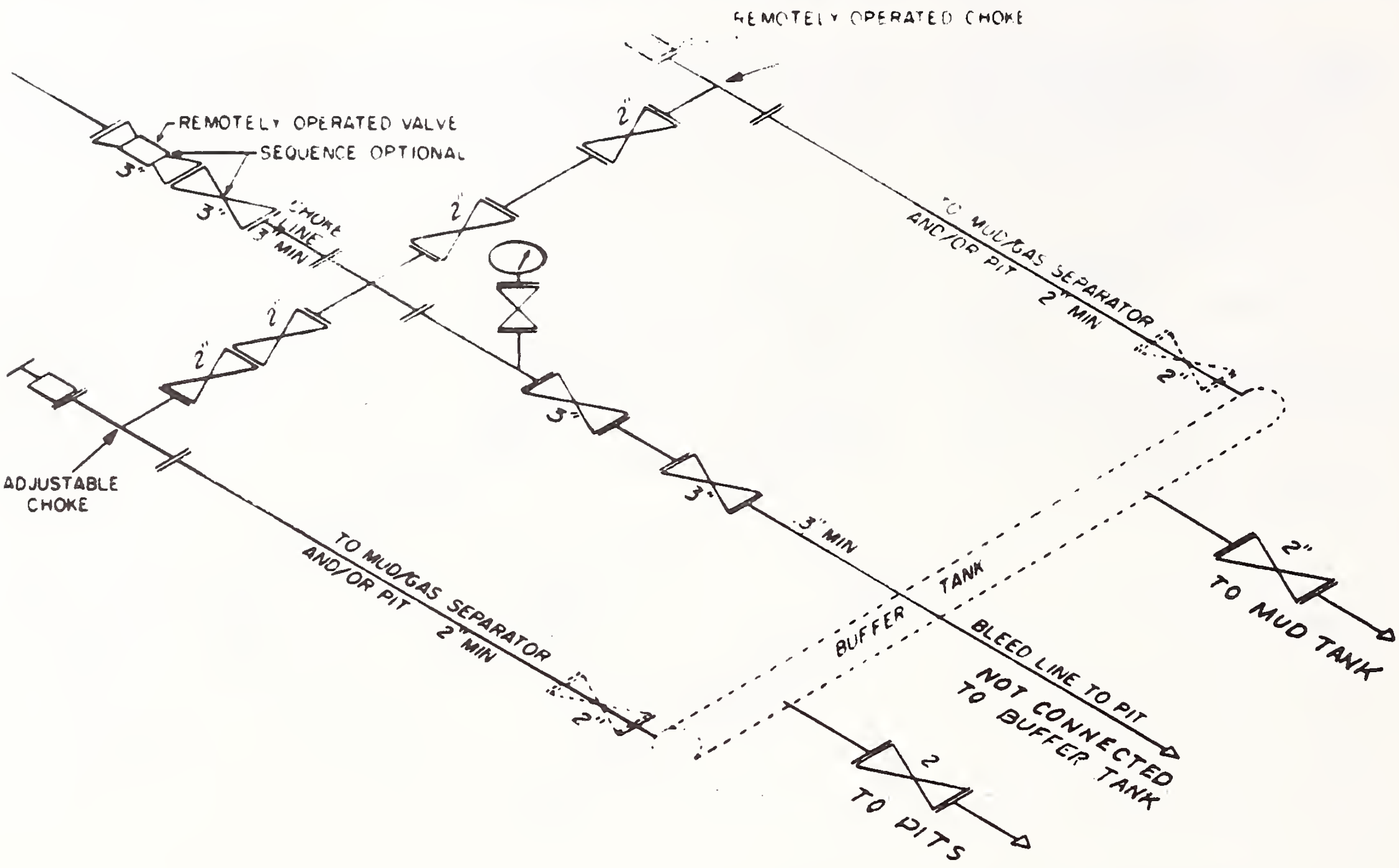
BILLING CODE 4310-84-M



2M CHOKE MANIFOLD EQUIPMENT — CONFIGURATION MAY VARY



3M CHOKE MANIFOLD EQUIPMENT — CONFIGURATION MAY VARY

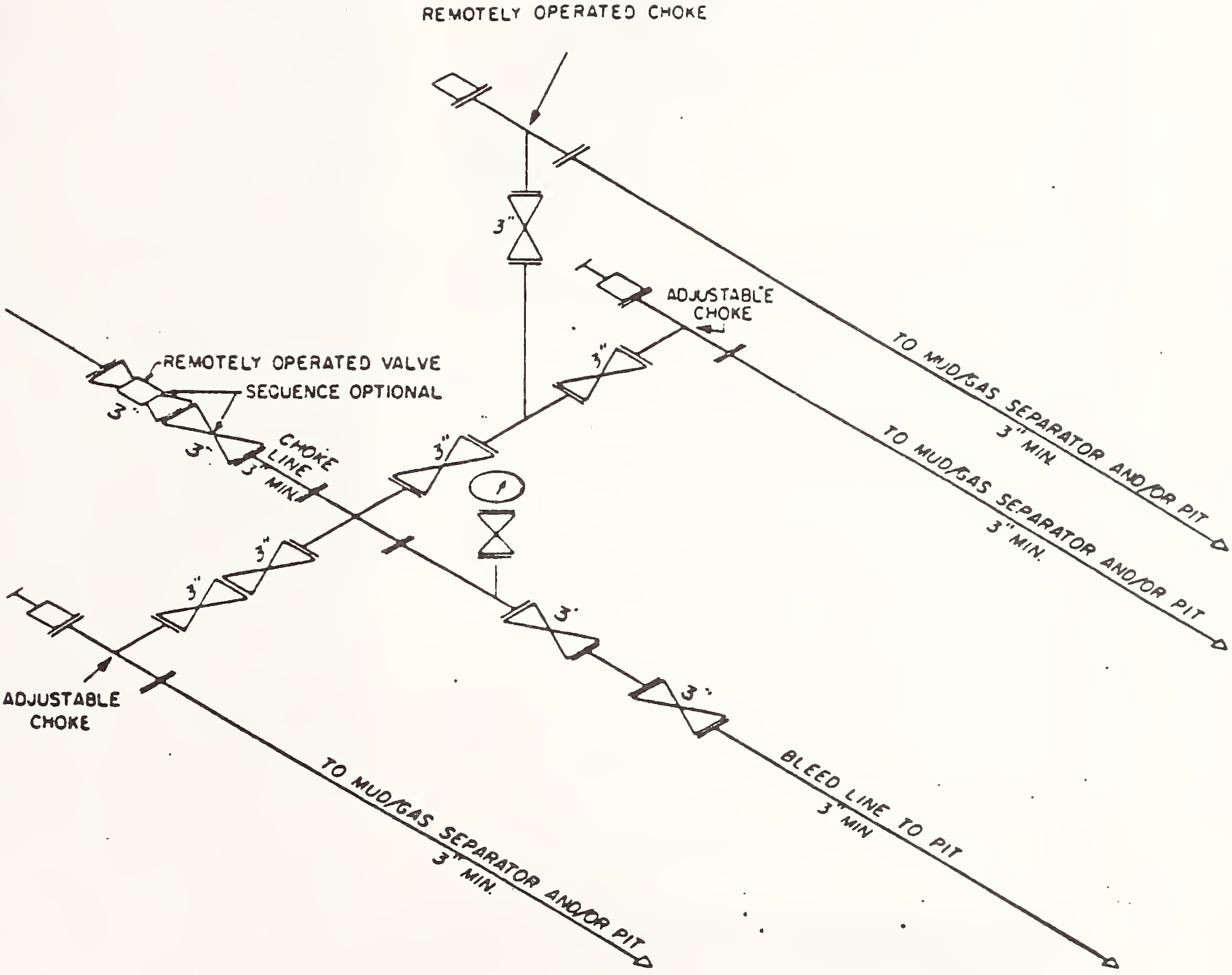


5M CHOKE MANIFOLD EQUIPMENT — CONFIGURATION MAY VARY

Although not required for any of the choke manifold systems, buffer tanks are sometimes installed downstream of the choke assemblies for the purpose of manifolding the bleed lines together. When buffer tanks are employed, valves shall be installed upstream to isolate a failure or malfunction without interrupting flow control. Though not shown on 2M, 3M, 10M, or 15M drawings, it would also be applicable to those situations

[FR Doc. 88-26738 Filed 11-17-88; 8:45 am]

BILLING CODE 4310-84-C



10M AND 15M CHOKE MANIFOLD EQUIPMENT — CONFIGURATION MAY VARY

Page Omitted by FR
Order No. 2 Drilling operations
Published FR Nov. 18, 1988

OIL AND GAS ACTIVITY OVERVIEW INSERT 1